THE HEALTH EDUCATION JOURNAL

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Editorial

Doctors frequently maintain that they are the main health educators. Certainly if one refers to the dictionary one finds that the word " doctor " means " teacher ", but the curious thing is that, amongst all the interesting and important things that doctors are taught, they are never taught how to teach. In spite of the fact that a doctor's work, whether in clinical medicine or in public health, largely consists of trying to understand what people are saying, and trying to convey his ideas to them, the arts of interviewing, group discussion and simple writing on technical matters form no part of his training—nor, for that matter, does he learn much about health. Nurses are equally sure that they are the main health educators, and to a lesser extent their training still lacks a proper study of health and the arts of communication.

The educational numbers of our leading medical journals are filled once a year with articles by eminent philosophers of medicine all calling for reform in the curriculum. But, as one American commentator is reported to have said, there is no country which writes so much and so wisely about reform in the medical curriculum, and there is no country in which so little is done to reform it as England.

An interesting development has recently taken place in Europe which shows that other countries are quite as aware of the deficiencies in medical education as are many people here. The World Health Organisation is holding a conference in June and July, 1957, to consider and discuss the question of the introduction of health education into the basic training of doctors and nurses, and into the training of those taking higher qualifications, such as the Diploma in Public Health. It appears that the intention is to consider first and foremost the education of the doctor and the nurse in matters of health as opposed to those of disease, and on the other hand to study all those occasions when doctors and nurses communicate with patients and other members of the public and to discuss how best their training can be designed to meet this.

(*continued on page* 6).

TEAM WORK AND HEALTH EDUCATION*

By JOHN BURTON, B.A., M.R.C.S., D.P.H., Medical Director, The Central Council for Health Education.

A POETICAL professor of obstetrics† recently likened the unborn child to a deep sea diver, lonely and dependent on a pipeline for his existence. Over the years a large and diverse group of people have settled themselves down in the boat to help the skipper with the delicate mysteries of her task. The question is : do all these advisers, the general practitioners, midwives, health visitors, paediatricians, clinic doctors and other more shadowy figures, work as individuals or as an organised crew ; and does the crew recognise that the mother is the skipper ?

Looking at the reports of the Guillebaud Committee and the Health Visitors' Working Party, I feel unhappy on both these points. Neither report includes any evidence from the skippers and one has the impression that the crew has assumed that they are in charge.

There is no field of health work where it is more essential that the mothers and fathers, yes, and the children, should be respected members of the team than in health education.

This Summer School started many years ago as a meeting place mainly for teachers and health visitors. It has grown gradually to embrace almost every kind of professional worker from general practice to hospital and public health, from industry to teaching. Now, I am very glad to say, we are beginning to be able to welcome interested people who can be truly described as representing the consumers.

Why do you come ? It seems from your answers to our questionnaire that you want to meet the other members of the team. Many of you seem to have a feeling that the growth of specialisation

* Inaugural lecture to the C.C.H.E. Summer School, 1956.

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has landed us all in a sort of delta, each in our respective stream, and that the main river of medicine is drying up in the sands.

Historically we have been through three great periods in health work. The pre-scientific period, when medicine was as much the province of priests, philosophers and poets as of doctors, had a certain enviable universality. When Leonardo da Vinci started to draw accurate illustrations of anatomy and Shakespeare burst open mediaeval psychology, the age of scientific medicine was ushered in. The early physicians were able to know and integrate all that was to be known about medicine. With the inevitable increase of specialism, eyes were turned inwards to individual pathology to such an extent that it was left to a statistician, Farr, a civil servant, Chadwick, and a lady of independent means and charitable connections, Florence Nightingale, to usher in the new and sophisticated idea of preventive medicine. The great sanitary reforms required little co-operation from the public, but the personal preventive services as conceived by Florence Nightingale implied intelligent and informed co-operation by lay people. It was during this period that the idea of health education became part of the preventive medical programme.

The age of the great quantitative improvements of preventive medicine is, however, now drawing to a close. The job has been a success, and it seems to me that the next great advance is upon us. We are now concerned to see whether we can promote the quality of life as successfully as we increased its quantity. This period of " The Promotion of Health " will not merely be concerned with preventing disease and perfecting the techniques of cure. Its guiding principle will be the deliberate raising of the genetic and environmental standards so that the optimal bio-psychological potential is achieved on as wide a front as possible. In the experience of all of us are a few people who seem to be living at this high potential in terms of energy, enjoyment and effectiveness. They contrast very clearly with the many whose lives seem impoverished by apathy, anxiety and self-pity. This period will present interesting new problems of epidemiology and technique, but it seems clear to me that no environmental manipulation can succeed unless health education, involving a high level of knowledge, awareness and ability for self-help, is widely distributed among the people.

The story of the promotion of health is not going to be an easy one to tell. Epicurus defined the human dilemma as " not proposing to ourselves the felicity we ought ". Whether we are

western Europeans or tribal Africans, proposing to ourselves a state of health that we have never yet experienced is no easy task. Even for us health workers it will or can mean an " agonising re-appraisal " involving some of our most dearly-held prejudices and even some of our vested interests.

What has this to do with team work ? The promotion of health will involve a high degree of integration between the social, economic, educational and medical functions. Sir Harold Himsworth said recently that integration does not take place between men but within men. This profound observation is obviously true of the highest type of integration and must be striven for personally, but there are few, if any, to-day with intellects and personalities adequate to the task of integrating the vast accumulation of knowledge and experience of which the sciences connected with health are possessed. This does not mean that nothing can be done personally and collectively to re-establish a holistic view of health.

The training of doctors and nurses has departed further and further from any pretence of being an education. It is now at the mercy of the teachers of a conglomeration of narrow specialisms who carry on an internecine warfare for the prize of the students' time. This can and must be changed so that at least such powers of integration as are possessed by the student can be cultivated rather than blighted. The other practical, if second best, method is the promotion of team work.

The comment appears more than once in the Report of the Health Visitors Working Party that the health workers in one employment, often working in the same building, remain isolated, and that the concept of team work is quite foreign to them. This is certainly a major problem of public health in its transition to health promotion. What is team work ? If you have never done it, it seems difficult and uncomfortable. You feel other people are invading your province ; that you are losing status ; your professional dignity may be hurt by criticism and comment from people who may be experts but who you feel have not got " your background ". This becomes even more difficult when the patient is accepted as part of the team, shall we say as the unique expert in his own problem. The problem of human relations and leadership become important, too important for those accustomed to work in isolation or in a rigid hierarchy.

I hope this School will display some of these important aspects of team work and give you the opportunity of deciding whether

the emotional effort is worthwhile. I am fairly confident that the philosophy and techniques we use are consistent with the basic idea of health promotion, that ultimately it is the consumer, the patient, who has to decide for himself what is best to do and has got to be able to do it by his own efforts, and that the professional people are there only in a consultative and objective capacity.

I must confess my own uncritical attitude was strained a few minutes ago when I was asked to make an announcement about the way cars had been parked all higgledy-piggledy outside the hostel. I was baffled ; what could I do ? To have a car you must be over 17, and if 17-year-olds cannot see for themselves the inconvenience, how could I give them insight ? In fact, I am refusing to do anything. Which raises the second big issue in teamwork, that of leadership.

Much has been said about leadership, but in most cases the type of leader envisaged is one who is apart from those led. In team work if the word did not sound so self-conscious one would prefer to call the leader the integrator, for that is the essence of his function. Unfortunately it is in the nature of institutions to give this titular role to one person. In practice it is the experience of every alert and sensitive leader that there are many occasions when it does, or should, change hands.

This means that the primary duty of leadership is to provide opportunities for each member of the team to excel individually, for only by this means do people achieve their full potential. It will follow that the leader will also be concerned with the personal development and education of the team. He can only achieve these by an effort to understand and enjoy the personalities of his team members : and by avoiding rigid and safe administrative solutions, provide the opportunities for change which experience inevitably demands.

For the leader this involves an effort of self-education both in the technical field of his subject matter and in the development of sensitivity in human relationships. Unless the culture of the leader is both wide and deep he cannot be a successful integrator, and unless the affective relationships between staff members are working reasonably well, much technical competence can be frustrated.

The other quality of importance is the capacity to generate enthusiasm. This seems to spring from many properties. First, I suppose, comes the leader's desire to see each member of the team excel in his own way and to express his recognition of the success in a way that means something to his colleague. Looking at his

team's work with fresh eyes, and posing worthwhile problems is another ingredient ; and finally the real transfer of responsibility to the team members to the maximum that they can carry.

Leadership can be lonely and few leaders will give of their best if they do not receive the stimulation and appreciation of their colleagues. Good relations work both ways—so be kind to group leaders.

I think if we can work some of these principles during the next ten days and display the manifold latent talent and energy which this group, like every other group of human beings, possesses we will be able to go back to our home grounds and pioneer the next great era of the promotion of health with confidence, strength and tranquility.

(*continued from page* 1).

What springs to mind when considering the trajning of a doctor in health matters ? Since the World Health Organisation is organising this conference, clearly they are likely to think in terms of physical, mental and social well-being. Therefore one assumes that the study will cover human biology in its widest sense, which is physical growth and development, normal mental and emotional growth and development, including studies of the human being in relation to his occupation, his marital state, his education, and the various normal stresses and strains, and the ways of preserving health in spite of them. A study of sociology and the way societies hang together, as well as the enormous apparatus of social law and custom and its effect on health matters, would need consideration. One immediately asks whether such a study is not indeed much more basic to the medical sciences than the present pre-occupation with physics and chemistry.

On the education side tremendous advances have been made in recent years in the art and science of communication, and though some medical schools have introduced techniques from educational psychology and from industry, most schools are still wedded to old didactic methods of presentation, with all their known shortcomings.

The medical and nursing student is therefore not always introduced to the most effective methods of communication, but has his mind conditioned to believe that these didactic techniques, involving an active speaker and a passive learner, are all that exist. It will therefore, be most welcome if this European conference can focus attention on some of the new research work which has been done on person-to-person and group communication, and on the assumptions about health and disease that both patients and doctors have when they meet, and can bring out ways in which this whole aspect of a doctor's work can be made more effective.

There is no doubt that in the future the health of nations will depend more and more on the degree to which each citizen is capable of helping himself with regard to health matters. Self-help can only arise on a foundation of better knowledge and education, and changed attitudes towards health and human relations. Doctors and nurses will undoubtedly be looked to for leadership in this field, and only on the basis of a deeper understanding and better training on their part can they be equipped to give this leadership. The findings of this conference will be eagerly awaited in many quarters.

EXPERIENCES IN THE HEALTH EDUCATION OF MOTHERS

I. Planning and Development

By GUY W. STEUART, M.A., M.Ed., M.P.H. and NANCY T. WARD, B.A., Department of Social, Preventive and Family Medicine, Faculty of Medicine, University of Natal, and Institute of Family and Community Health, Durban.

INTRINSIC to the way of life of every human community, there are potentialities for change and for constructive effort in the solution of its own problems. The success of a programme directed against problems of health and disease depends on a constant balance between the actions and service of experts and the needs and drives felt by the people as a whole. Indeed, a major task of health education may well be conceived as the planned stimulation of sometimes latent, sometimes misdirected, forces of popular motivation, to a more positive realisation in the service of better personal, family and community health.

In this series, the story will briefly be told of experiences in the group education of mothers which was part of a total health education programme founded on these convictions.

A European surburban community of about 500 homes was to receive a family health and medical care service through the medium of a demonstration health centre staffed by physicians, nurses and health educators. Although the health education work was predominantly the responsibility of a distinctive professional category, the health educator, these experiences seem to be relevant for all who are concerned directly or indirectly with health education.

Personal relations with the people were established initially through home-to-home visits in which the health educator introduced herself and explained the services offered by the centre. Subsequent visits to a number of these homes resulted in closer

relationships with many housewives.

Gradually, mothers and their children, with fathers to a lesser extent, began to visit the centre in response to the invitation to have health examinations by the doctor. These included rather detailed personal histories and became rich sources of information about the people of the community as a whole. Guidance of a preventive and promotive kind was given, and where curative care was found to be necessary the patient was referred to his private family doctor.

The majority of children brought to the centre by their mothers were of pre-school age and special diagnostic sessions for this age-group were begun. Each child attended in a group of five or six others for an hour or so a day for five days. Sessions took the form of a small play group and individual examinations were done by withdrawing each child in turn from the group, to which he returned afterwards.

This was not simply an administrative procedure for dealing with numbers of children. The total examination of each child was both physical and psychological, and observation of the child's social behaviour in the group was an intrinsic part of the health appraisal.

The broad orientation of this examination, and the accompanying parent guidance, stimulated considerable interest among the mothers in the more general welfare of their children so that the sessions in themselves acted as a liberal, educational medium.

The doctor and nurse, too, came to be regarded not so much as highly specialised consultants only in time of illness, but as general advisers in all health matters of the family and in the care and management of growing children. The doctor and nurse showed concern not only for the more positive aspects of health, but attempted to see it as a product of social life, particularly of life within the primary social group of the family.

Naturally, health education in such a context takes a rather different form from that which is fragmented from the beginning into particularised assaults on discrete diseases and problems.

The health education objective with parents, for example, was to improve by educational means the quality of parental care as a whole, so that all possible aspects of health were affected. This gives the educator a wider variety of motives and felt needs of parents to which he may harness his education. It also means a more extensive study of local culture and child-rearing patterns.

This does not, of course, excuse vagueness about specific

problems which supply so many of the measurable items necessary for a systematic evaluation of educational methods. But these specific problems may be seen in a broader context and with a more fundamental human understanding.

Certain simple facts about the community soon became apparent. It consisted mainly of young married couples with two or three children in each family. The majority of these children were of pre-school age. The fathers were mainly in clerical and artisan occupations and a fair number of mothers were also in employment. Family incomes varied between £40 and £60 per month.

Of close interest to the health educator was the high frequency with which the care and management of children was a spontaneous topic of everyday conversation among the women in their own homes and with their friends. This had been noticeable in informal situations from the first days of the health centre's contact with the community.

The pre-school diagnostic and guidance sessions served to sharpen, articulate and canalise this interest. At the same time, many mothers regarded the group sessions as a sort of embryonic nursery school and were disappointed when the inevitable end came to the particular examination of their own children. They began to talk informally about the need for a nursery school in the community. At the same time, it was kept constantly before them that the formation of such an institution was not a direct official function of the health centre.

Although this development was encouraging, caution seemed necessary in assessing its meaning. It was apparent, for example, from the way a nursery school was discussed, that the mothers were only partly influenced by the possible benefits for their children. One of the dominant motives seemed to be to have a place where children could be " kept out of the way ", giving the mother more freedom from her children.

Being able to send her child to a nursery school has doubtless a very practical advantage to the busy housewife. But it is probably not unreasonable to suppose that some element of rejection may and often does intrude itself. In this particular situation, it seemed that the mothers were seeking an external solution to some of their personal problems of child management. In some degree at least, they appeared to be avoiding the not always pleasant experience of developing an insight into themselves and into their children that might have made management easier at home.

This is a pertinent illustration of the limitations of overt action alone, as an index of educational success.

But although the desire for a nursery school was interpreted as at least in part an evasion of personal responsibility and a resistance to learning, it was a real felt need and the end was certainly a desirable one.

Consequently, about ten of the more active and interested mothers were invited to attend a meeting. At this meeting, it was decided to form a " community centre " to care for all those aspects of community welfare which were not included in the more restricted health objectives of the health centre. It was agreed that the first project of this community centre should be the founding of a nursery school. Thus, with the health educator's active encouragement and guidance, the people themselves formed an action group dedicated to the achievement of a practical objective.

This local effort was regarded as a symptom of the self-expression and awareness which are important indices of educational change. Since, however, it was regarded also as something of an evasion of deeper education, the health educator suggested that although the group met primarily as a committee devoted to organisation and fund-raising, it might also, as a regular feature, informally discuss various aspects of child care and development affecting family life itself, and thus not be concerned only with the achievement of external, practical aims. The group members would then have a double experience. On the one hand, was the " action " experience of systematic and shared planning, in which discussion and education was limited by its relevance for the more practical project under way. On the other hand, there was the more intimate experience of sharing personal ideas and problems about one's own children, with other mothers.

With the new-found security that goes with having a clear executive function, the suggestion was readily accepted, and regular weekly meetings were arranged to take place in the homes of the members in rotation.

At first, in the free discussion sessions, the group tended to rely on the health educator to suggest topics. Maintaining a highly permissive leadership role, the health educator encouraged optimal participation by everyone. It was not long before the group began to take the initiative in introducing topics and determining the lines of discussion.

In the meantime, the executive functions of the group progressed steadily. Funds were raised by various means, and in their spare time a number of enthusiastic fathers themselves erected a substantial nursery school building at low cost from salvaged materials. The school was later equipped and staffed and met the necessary Nursery School Association requirements for official recognition and subsidy.

In little over 20 months from the time the health centre conducted its first diagnostic session, the new nursery school had its opening day and welcomed the first batch of children.

While the latent potentialities for self-conscious, constructive action had been brought to effective expression, the more personal group discussions were also showing progress. In fact, the health educator was encouraged to attempt the formation of other groups of a similar kind.

The group we have just described was based essentially on a common interest in the welfare and management of pre-school children. Moreover, it had been formed at a time when little was known of the social relationship patterns in the private lives of the people. Having learnt more about these, a different start was now contemplated.

In another part of the community in which the spontaneous social groupings were known to the health educator, a new group was formed. Its nucleus consisted of six mothers who were already on close friendly terms with each other in private life. New members were subsequently drawn in, not so much because of common interests but because of their friendship with some of those who were already members.

Highly informal and an enjoyable social experience for the members, this group was the prototype for others formed in the community. Unlike the first discussion group described, this one took the initiative from the beginning and maintained an internal driving force that gave it a relative independence of the health educator. At the first meeting, for example, the members did not ask the health educator to introduce a topic. They entered directly into the question of difficulties in getting to and from the health centre. From this they moved to a whole range of problems in the care and management of children such as the handling of the disobedient child, when to call in a doctor, and what to do about coughs and colds.

Subsequently, other groups were formed on similar lines to the first two described. All these groups could then roughly be

classified as "common interest" or "friendship" groupings. The "common interest" groups were not all devoted to external action, however. Among them, for example, was a group started for expectant mothers, in which the experience of pregnancy was discussed. Another group was formed with the mothers of adolescent girls who were worried about sex education.

As a general rule, apart from the original community centre group, the "friendship" groupings seemed the more reliable and lasting. They were, after all, in more direct continuity with the spontaneous social life of the community and, therefore, though not geared to public action, had strong potentialities as learning situations.

Altogether the comparative readiness with which groups were formed showed that they were meeting a real need in the lives of these parents, many of whom were having this kind of experience for the first time.

Actually, the streets in which people lived, varied considerably in character. In some streets, effective group work was extremely difficult. Sometimes there were numbers of relatively isolated families, or marked alignments based on antagonisms or feuds between one family and another.

Finally, it should be mentioned that in the ordinary course of home visits, the health educator frequently found a housewife with one or two friends visiting for the morning or afternoon. These small groups were particularly valuable, because not only did they add to the centre's knowledge of the social patterns of everyday life in this community, but health education could often be grafted onto the topics already being spontaneously discussed at the time. Indeed, it is doubtful whether, properly used, there is a more important vehicle for health education than such small informal everyday groups.

In summary, then, it will be seen that experience with parent groups in this community was not confined to one type of situation. It involved a range of situations varying from the highly personal spontaneous social situations to the planned public action group, formally aware of a community problem and systematically working to its practical solution.

THE EDUCATIONAL APPROACH TO HEALTH WORK

By WILLIAM GRIFFITHS, Associate Professor of Public Health, University of California, Berkeley.

EDUCATION as a basic approach to health work is well recognised and accepted. Standard textbooks in public health administration invariably mention education as one of the major activities of official and voluntary health agencies. Shepard[1], in discussing basic services of local health departments, feels that public health education " is the most recent and perhaps the most effective of the gradually evolving health procedures." The development of specific programmes in public health, on tuberculosis, cancer, heart, nutrition, mental health, sanitation, and many other topics, has given high priority to the educational approach as a method of meeting programme objectives. Education is so vital to all public health activities that most public health people would agree with Hanlon[2] when he states : " Everyone involved in or concerned with health in any way is a health educator."

Education is used as a basic tool by nearly all health persons in their job activities : nurses, sanitarians, school nutritionists, health service personnel, to mention only a few. Health agencies throughout the country have budgeted millions of dollars for the dissemination of health information through the traditional mass media channels of pamphlets, bulletins, exhibits, films, press releases, radio and now television. Although there is wide agreement about the importance of education in meeting health problems, there seems to be little understanding as to what the educational approach is and how it can be used effectively.

It is not surprising that health workers do not understand the educational approach, for the great majority have had their

professional training and experience in the medical and biological sciences, while the educational approach has as its basis the social sciences. The growth of social sciences during the last decade has been tremendous, and it is difficult for health workers to keep abreast of the recent advances made in education, social psychology, cultural anthropology and sociology. Social science investigations have direct application to health activities, for they are concerned with such areas as motivation of behaviour, working with minority groups, individual and group productivity, and analyses of agency structure and function.

It is the purpose of this article to spell out the meaning of the educational approach. No attempt will be made to elaborate in detail any component of the educational approach ; rather the presentation of a skeletal framework is the main objective. Numerous articles have been written on specific aspects of health education but few have been concerned with the development of a general framework.

What is the Educational Approach ?

When the educational approach is used in health work the goal is usually that of change—change of information, attitudes, or behaviour. In this article the phrase " change of behaviour " is used in a broad and positive sense. Change of behaviour takes place when an individual substitutes a scientifically more effective health practice for another one, or when an individual takes action which leads to more effective health practice. Change of behaviour is the goal when a teacher attempts to have her pupils visit a dentist at regular intervals, when a sanitarian helps restaurant personnel meet sanitary standards, or when a community health council attempts to arouse interest among citizens for financial support of a new health centre.

To bring about change in behaviour three steps are frequently necessary : (1) creating or changing perceptions ; (2) utilising motivational forces ; and (3) making a decision to act. These steps are inter-related and are parts of a total change process. Let us examine the meaning of these three steps.

Creating or changing perceptions.

Our behaviour in any given situation is determined to a large extent by the beliefs, attitudes and values we hold. These beliefs, attitudes and values, ever changing, in some individuals more slowly than in others, are the result of our life's total sum of

experiences. The way that we view people, situations and objects in our life is called perception*. It is quite obvious, then, that since we have all had different experiences our perceptions of things around us will be different. To one individual a health department is perceived as an agency to which poor people in a community can go for vaccinations, immunisations and for other assistance in child health matters. Another individual perceives the health department as an agency concerned primarily with problems of sanitation ; while a third thinks of it in terms of mental health, heart disease, and other unsolved health problems. People's perceptions of medical care differ widely. A recent study of health screening among longshoremen revealed that some waterfront workers felt that medical care for anything other than serious disorders was unmanly[3]. We know that this attitude is quite different for other groups who look upon the doctor as a person to visit before serious disorders occur.

In some of our health work the problem is not so much one of changing perceptions as of creating perceptions. We find children and even adults who have neither knowledge nor experience in certain areas of health and have therefore no perceptions in these areas. At the present time many health departments are attempting to institute procedures for the fluoridation of water supplies. Most persons in a community know little or nothing about the subject of fluoridation, and before community action can be taken perceptions will have to be formed.

Utilising motivational forces

There is a good deal of truth in the old adage " You can lead a horse to water but you can't make him drink." People can be told repeatedly of a more effective health practice documented with undisputed facts and figures and still refuse to change their old patterns of behaviour. Professional health people are so deeply interested in their work that they often forget that facts and figures change behaviour only if they are related to basic human needs. It is unfortunate for health workers that good health in itself does not seem to be a basic need. If it were, all of our work would be

* The term perception is used in its broader meaning as employed to-day by many social psychologists, who, as Allport[4] states, believe that " perception may be used in a societal or social-field context to cover almost everything that enters into the individual's apprehension of the complex situations that comprise his social living. It may include not only his seeing or hearing of the other members of the group, but his awareness of their relationships, their values, and their attitudes toward him. Perception is nothing less than the individual's understanding of the social situation in which he is placed."

so much easier. People would visit dentists and doctors regularly, and sufficient funds would be made available for adequate medical care and preventive services. It is also unfortunate that psychology has not advanced sufficiently to tell us how to establish new needs. Creating new needs is an area we know little about. It means, then, that we must utilise in our health work those biogenic and acquired basic human needs that serve as the motivational determinants of behaviour. Unless we can in some way harness our facts and figures to basic needs we cannot expect behaviour to be changed.

In psychology the field of motivation is not only a complex one, but one in which there are still many unanswered questions. Even though present theory and research are far from being final, most psychologists would support the statement that human behaviour is influenced not only by the biological needs of sex, thirst and hunger, but also by needs that are the result of socialisation and acculturation. These needs, called learned or acquired needs, can motivate behaviour as strongly as the biogenic needs. Although students of motivation are not in complete agreement about what needs are acquired, the ones mentioned most frequently are : affection, security, gregariousness, and recognition or prestige.

Year after year, school children and adults are exposed to health information and experiences for the purpose of creating and changing their health perceptions. Unless the information and experiences have real meaning in relation to basic needs, learning will not be as effective or as lasting as it might be. How can children be motivated to eat adequate breakfast ? How can interested persons persuade a community to tax itself for more adequate recreational facilities for young and older persons ? To answer these questions and many others we must search for the motivational forces which have real meaning to people. Since the educational approach is unlike the legal approach, which can compel a person to behave in a specified way, the educational approach must depend on the individual's own desire to change or act.

In addition to the personal needs already discussed, there are certain social needs not clearly understood in psychology. These social needs are deep rooted in our value systems. It is fortunate for our society that many men and women will act for the good of society even though no personal motive is involved. People without children will tax themselves for better schools. Without

personal gain or fame, people will give time and money to provide more adequate health, welfare and recreational services for the communities in which they live. Important, however, as these social needs are, it does not mean that we should neglect utilising what we do know about the forces of personal motivation. It would be unsound planning to go on the assumption that because a particular health activity was worthwhile for the community everyone would naturally support it.

Research in the field of group dynamics during the last decade has given a renewed emphasis to the tremendous influence of interpersonal relationships of groups in both formulating and changing attitudes and behaviour. Katz and Lazarsfeld[5] review some of the recent sociological and psychological studies of the "rediscovery" of the primary group in our society, showing the powerful effects of the factor of interpersonal relations in the field of mass communication alone. These studies and numerous others have made us see how firmly anchored an individual is to his family, friends and work associates. Individuals do not generally change attitudes and behaviour which run counter to these groups. Lewin[6] expresses this so effectively with the theme that runs throughout his writings : "The group to which a person belongs is the ground on which he stands." In health work the factor of group influences must be given a high priority when dealing with problems involving motivation. Individuals must always be thought of in their social context, with family, friends and other influential groups being the pilots of their actions.

Making a decision to act

A mother has read an excellent pamphlet on immunisation and is convinced that her child should be immunised. She is fully aware of the need for immunisation and sees it as an important procedure for protecting the health of her child. For some reason or other she does not actually have the child immunised. A business man has read about the mass x-ray survey taking place in his community and is convinced that he needs an x-ray. For some reason or other he fails to have an x-ray made. We can all probably think of many similar situations in our own lives ; our intentions were good, but we failed to complete what we had decided to do. This particular phenomenon of behaviour is very important to health workers. The child whose mother means to take him to a doctor for a needed eye examination, but never does, is in many ways no better off than the child whose

mother is unaware that an eye examination is needed. There are, without question, many psychological explanations of why people do not complete an intended task. A full discussion of these reasons is not necessary for our purpose, but it might be suggested that one common reason is undoubtedly the great number of competing forces operating in people's lives which often make it difficult for them to do all that they desire. The important thing for health workers to know is that a bridge is needed between intentions and action. This bridge which might appear to us as being relatively unimportant is often psychologically a determining factor in behaviour. The bridge is a decision-making process on the part of an individual or a group indicating that action will follow. Illustrations will help to clarify this concept. A mother intends to take her child for an eye examination : a telephone call to the doctor's office for an appointment by the mother or the public health nurse might serve as the bridge between intentions and action. A group of mothers meeting with a doctor in a well child health conference might decide as a group to try some different procedure the doctor has suggested pertaining to sleeping habits of children : the decision made by the mothers, in a matter of a few seconds, expressed by only a few words and nodding heads, can have such a powerful psychologically binding force that most mothers will follow through on the doctor's suggestion. This decision making act is an important step in the total process of changing behaviour which has been demonstrated so clearly in the research studies of Lewin and his students. [7] [8] [9] [10]

Methods Bringing About Change

Thus far three steps, often essential if behaviour is to be changed, have been outlined, but methods of bringing about change have not been discussed. In most of our health work there are three major methods we employ, called change methods. These change methods are community organisation, individual approach, and mass media.

The term " community organisation ", used for many years in sociology and social welfare, but only recently adopted by health workers, is one meaning different things to different people. The author defines community organisation as a method employed in the solution of community needs, when those needs can be met most effectively through joint or co-operative effort. Community organisation as a method can be used effectively or ineffectively.

The key to the successful application is the nature of the interaction process involved in the joint or co-operative effort. This interaction process, sometimes called group dynamics, group process or the democratic approach, provides the answer to why health activities and programmes have varying success. The community organisation method consists of numerous techniques and procedures with which health educators are all very familiar : meetings, conferences, workshops, in-service training, block plan approach, discovery of community leaders, to mention only a few.

The second change method, the individual approach, is the one used most frequently in health work. Its wide use has led to the general acceptance of the statement that everyone concerned with health is a health educator. The nurse talks with a mother, the doctor with a patient, the sanitarian with a homeowner—these are examples of the individual approach method. The individual approach and community organisation methods are similar in that when both are successfully used the interaction process involved is the same. However, the individual approach method involves only two persons, while the community organisation method usually involves many more. Also the individual approach method is more often used in a situation in which one person is attempting to bring about change in the other. This is not generally the case in community organisation.

Mass media, the third change method, is one with which we are all familiar, and it needs no elaboration at this time. Pamphlets, exhibits, bulletins and other media are widely used in health work.

The three change methods must, of course, be appraised in relation to their effectiveness in accomplishing the steps of creating or changing perceptions, motivation, and decision to act. Even though the three methods are most frequently employed simultaneously in a health activity, it is well to realise that each of the methods has certain unique advantages and limitations. Without going into detail, and at the risk of oversimplification, present-day research shows that the strength of the mass media method is in the process of creating or changing perceptions, that of the community organisation method in motivation, while the individual approach method has its strength in the step of decision to act.

In closing these remarks about change methods it might be said that it is disturbing to hear some workers in the field of health, often health educators, make such statements as these : " In our health agency we are not doing enough in radio." " We should

do more in community organisation." It is confusing to speak of methods as objectives. A health department could function for many years without using radio as a mass communication medium if there were more effective ways of achieving programme objectives. Programmes are not built around methods ; methods are selected after programme objectives have been determined.

Health Programmes and Activities Originate from Needs

This discussion of the educational approach opened by stating that the goal was change in information, attitudes and behaviour. The goal along with the steps of accomplishing it were discussed first, for it was thought if the reader could see the direction in which the discussion was leading it would help to clarify the ways in which the goal might be reached. It might be helpful now to discuss the starting point of the educational approach, the origin of health programmes or activities.

Health programmes or activities arise from needs. Health needs may be recognised by any person. A person does not have to be professionally trained in health either to recognise many health problems or to initiate action toward their solution. As might be expected, goals are more realistically set and achieved through the co-operative efforts of both lay and professional health people. The accomplishments of the voluntary health agencies in the United States are ample evidence of this fact.

We sometimes become aware of certain health needs which can be solved simply and quickly. However, most of our major health needs for which the educational approach is employed are not easy to solve. The late Dr. Joseph Mountin[11] of the United States Public Health Service was cognisant of the complexity of modern health when he wrote before his death : " In recent years we have been witnessing a steady broadening of the horizons of public health. The emphasis has shifted, to a great extent, from the microbiological effects of disease to the study of man in his socio-economic setting . . . . our job (is) more complex and (has) thrust on us many new responsibilities."

Focusing Health Needs

If the educational approach is to be used effectively, a health need must be studied and analysed thoroughly. This particular type of planning might well be called " focusing the need." Depending, of course, on the specific need, there are several questions which aid us in this focusing process. The following

four questions are cited as examples :

1. What other people are aware of this need and how strongly do they feel that something should be done to meet it ?

This can be a very searching question to ask, for it often reveals the significance of a need. For example, a director of a division of maternal and child health in a local health department might feel the need to start a new activity, but in discussing it with his staff and other members of the health department, he might find that they did not view the activity with the same degree of importance. We know our own perceptions are influenced by personal needs, and at times it is difficult for us to perceive objectively. It is not intended to give the impression that individuals never start activities unless other persons agree with them, for we all know that if this were the case many significant accomplishments in this world would never have been achieved. The point is, rather, that new activities involving many hours of work and sometimes great sums of money might be discussed profitably with those who can help judge their significance.

2. Who are the people who are actually concerned with the need and how do they feel about it ?

Thinking through this question can be of tremendous value in numerous ways. Frequently it can give an indication of the acceptance status of an activity by those who are most concerned with it. For example, a school principal might have delayed an in-service training course for his teachers if he had taken the trouble to investigate how they felt about such a course. Many in-service training programmes end up as failure because they are thrust upon persons who have had no voice in either programme origin or development. Surveying attitudes of people concerned with a need serves as a useful guide in planning procedures of work. Community organisation procedures for promoting a local health department in an area where the people have indicated a strong interest in developing health services would be quite different from community organisation procedures in an area where the people are unconcerned about problems of health.

Also by asking which people are actually concerned with a need we define the group more specifically. Heart associations have been interested in developing programmes in industry, and some local heart associations have requested time from industry in order to give talks and show films to workers on the nature of cardiac disorders. Since industry has been able to allot only a short period of time to such programmes, the most successful of

these have been the ones in which local associations have thought through carefully the specific group of workers they were most interested in reaching. An effective programme for workers who have actual cardiac disorders would be quite different from a programme designed for workers in a young age group who are relatively disinterested in heart disorders, or a middle age group where heart disease is only beginning to have some personal meaning.

3. What data exist which will give valuable information about the need ?

Many health activities might be considerably altered or early discarded if thoroughly studied in the planning stage. Time devoted to gathering factual data and empirical evidence is time well used. Many health councils would still be active if eager promoters had taken time to consult with people having wide experiences in health council work. At times interested persons start a health project which receives little community support, only to find later, to their surprise, that the same project met with failure a few years previously. Data about an activity not only gives us important background material, but also helps us to see the activity in relation to other activities. Health workers operating in a framework of limited time and budget must set priorities. Statistical and other facts will frequently be the determining factors in setting priorities of work.

4. Is it possible to evaluate whether the need has been met ?

If evaluation can be made only in relation to clear and specific objectives, it is then essential that we spell out in detail what we hope to accomplish. Evaluation should not be something that is considered after an activity is completed. Methods of evaluation should be determined in the planning stage and are often carried out while the activity is in progress as well as when it is completed. A proposed two-year home safety programme is likely to have its course changed if evaluation methods have been devised which can be used early in the programme to test whether objectives are being met.

Four questions have been suggested which will help to focus needs. There will be many more the reader can think of that will also prove helpful. It is within this initial planning stage of the educational approach that the seeds which determine the later success or failure of health activities lie.

Focusing health needs consists of at least four major parts : fact finding, establishment of objectives and priorities, determination

of methods, and evaluation. With complex health problems the process of focusing health needs is most effectively met through multidisciplinary attack. No one public health speciality has all the tools within its own discipline for solving certain types of problems. The process of focusing health needs provides the meeting ground for many disciplines to come together for shared thinking, each making its own unique contributions. Industry as well as public health has become so complex that a multidisciplinary attack is essential. The du Pont Company[12], for example, in discussing their executive committee which consists of sales, technical, manufacturing and other speciality fields and which has the full authority for all planning, states : " We reap the benefit of diversified experience . . . It may take longer to get action, but this pays off handsomely in better decisions and ability to follow through on long-range policies."

Multidisciplinary planning provides an opportunity for the health educator as an expert in the educational approach to work co-operatively with the experts in the other major approaches to public health—administrative, technical, legal, statistical and epidemiological, who are all actively concerned with the planning process. The epidemiological approach, for example, is closely allied to the educational approach. Buell[13] defines the former as " . . . the effort to discover facts about the characteristics of a community-wide problem and then put them systematically together to determine how to do something constructive about it. Facts about its distribution, intensity, mobility, cause, environmental setting, workable control methods, and so on." Buell illustrates the importance of the epidemiological approach in reference to his study made in St. Paul, Minnesota, of individuals who were in need of various community welfare and health services. Individuals who had problems—financial, social and health—came from relatively few families. Community effort, if it is to be effective, must be concentrated on these families. Buell concludes with the statement that " we must develop much more basic epidemiological reasoning and knowledge if . . . community action is to reach fruition."

It is probably fair to say that many health programmes or health activities would never have started, or their direction would have been considerably altered, if the multidisciplinary approach had been employed in the early planning stage. Each of the experts of the major approaches can make his own unique contributions to fact finding, establishment of objectives and priorities, determination

of methods, and evaluation. For example, in regard to evaluation, the health educator's unique contributions are often in the area of media pretesting, collection of descriptive data, and the measurement of attitudes.

Educational Approach A Learning Process

Since learning is the acquisition of new modes of behaviour, then the educational approach which has as its goal change of behaviour, is essentially a learning process. How effectively we use the educational approach in our health work depends on how well we understand and apply principles of learning. One principle of learning, motivation, has already been discussed. It would be impossible to summarise the tremendous amount of research that has been done in the entire field of learning, but it might be helpful to select for discussion two other principles which are of significance to all health workers whether they are teachers, nurses, health educators or health officers.

Principle of repetition. One of the first principles of learning investigated by psychologists was that of the effect of repetition on learning. This principle is sometimes misunderstood, for it is thought that repetition alone is capable of producing learning. Repetition is an important condition of learning when it is accompanied by such other factors as attention, interest and meaning. Recreation leaders can use every available communication channel to discuss recreation problems of the community, but repetition will have little effect in sparking community action unless the problems are presented in a way that will arouse interest and have meaning to the citizens.

Repetition also has a value that we frequently forget. It provides the individual with opportunities for improvement. Some of our important health legislation was passed only after many attempts, but after each attempt we had opportunities to examine our procedures critically and make necessary improvements.

Principle of participation. It has long been recognised that learning does not take place unless there is activity. It was over thirty-five years ago that the first research was done which showed that both children and college students learned appreciably more when they used part of a given time in recitation than when they used the whole time in passive reading alone. Since that first experiment, there have been many other research studies which show the importance of activity in learning. It has been during the last decade, however, that psychologists have given additional

meaning to the concept of activity. It is now felt that it is not just the motor activity alone which is the important factor in learning, but activity that is directed toward personal *participation*. We now have substantial evidence from research to show that when people are personally involved in determining their own activity, interest and morale are heightened, productivity increases, and goals are much more likely to be reached. Allport[14], in reviewing studies relating to the principle of participation, writes: " Such findings add up to the simple proposition that people must have a hand in saving themselves ; they cannot and will not be saved from the outside."

As we use the educational approach in our health work it might be of value for us to test constantly whether our procedures are in keeping with this principle of participation.

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DOES THE CONSUMER COUNT?

To the Editor of The Health Education Journal

Dear Sir—With reference to the Editorial in your September 1956 issue : no doubt the housewife, in spite of receiving separate tradesmen at home and visiting a variety of shops to obtain ordinary commodities, would say—one visitor, the family nurse. It is, however, doubtful if the advantages would outweigh the disadvantages.

The district nurse, the midwife, and the health visitor are poles apart in outlook and temperament. A qualified woman combining the three functions would be highly successful in one aspect and probably " a flop " in all three, as a general utility person is never as good as the expert.

In his book *Trends of Opinion about the Public Health, 1901-1951*, Professor James M. Mackintosh writes : " One broad feature which forms a background to the whole fifty years may be mentioned at this point : everyone says that prevention is better than cure, and hardly anyone acts as if he believes it, whether he is attached to Parliament, central or local government, or the commonalty of citizens. Palliatives nearly always take precedence over prevention, and our health services to-day are too heavily loaded with salvage. Treatment—the attempt to heal the sick—is more tangible, more exciting, and more immediately rewarding, than prevention."

Dr. Kenneth Soddy expressed his views clearly when, addressing the Queen's Institute of District Nursing on the " Prevention and Care of Mental Ill-health ", he said : " But times of serious illness and of death of relatives are perhaps not the most favourable opportunities for helping people. The general principle which applies to all mental health work is that it can be done only when people are receptive ". People are not receptive of education immediately preceding, during or following an illness.

It is now known that present-day health visitors listen, inform, discuss and let people form their own conclusions, and the views of Florence Nightingale become more widely accepted when the health visitor receives the valuable assistance of the " educational " home helps in special cases.

Finally, what is needed is not more " family nurses " as you describe, but more women of the type and outlook of the full-time health visitor.

Yours faithfully,

Municipal Health Centre,
Southend-on-Sea.

EDITH M. M. ROBERTS,
Superintendent Health Visitor.

FLUORIDATION: THE BATTLE OF HASTINGS*

By DEREK TAYLOR, Medical Officer of Health, Palmerston North, New Zealand.

HASTINGS (population approximately 21,000) was introduced to fluoridation in March, 1951, when the Hawke's Bay Branch of the New Zealand Dental Association approached the Borough Council.

The Hastings Borough Council supported by their colleagues at Havelock North (population approximately 1,800) in turn approached the Minister of Health and the Health Department with enthusiasm. They established their case that Hastings, with Napier (population approximately 25,000) as a control town, would be ideal for a survey and the Government agreed to finance a pilot scheme for New Zealand. One survey only was decided upon, partly to establish that the excellent results obtained overseas could be repeated under New Zealand conditions, but also to gain experience with fluoridation equipment which would be useful to other communities at a later date. This decision has proved a wise one and much valuable experience has been gained. It was not fully realised at this stage that invaluable experience would also be gained in the tactics used by opponents of fluoridation.

The press at this time was wholeheartedly in support of the idea and favourably headlined such words as " Experiment ", " Guinea Pig ", and " Doctored Water ". (These words were to reappear in print later with quite a different emphasis).

The scheme also received favourable Dominion-wide publicity and several other towns approached the Health Department seeking advice on fluoridation but for the reasons given above agreed to wait until more experience had been gained in Hastings.

In due course it was announced that the equipment had arrived

* An abridged version of " Fluoridation Comes to Hastings ", *New Zealand Medical Journal*, February 1955, Vol. LIV, No. 299.

and a few months later fluoridation began, still without opposition.

In November, 1953, after the plant had been in operation about eight months, opposition began. Several letters to the paper complained of dry mouths " traced to the water supply " and one writer hinted darkly at " worse to come ". Day by day the letters of protest in the press continued and multiplied until at least a column was the routine. It became impossible to ignore them and although it was felt that the average citizen was not at all disturbed by the situation a letter in reply was made by the Medical Officer of Health who also arranged for a series of articles, by recognised health authorities, outlining the safety and advantages of fluoridation. Occasional letters supporting fluoridation and the council's attitude towards it also appeared from other sources. The early letters of protest were mostly signed by a *nom de plume* but those signed personally usually revealed the writer as a well-known crusader of public causes whose signature had frequently appeared below letters to the editor in the past. These earlier letters were unco-ordinated individual efforts ranging from a continuation of the dry mouth and taste theme to an occasional claim that nephritis, heart trouble, fibrositis, insomnia, cancer, etc., could result. Several writers objected on principle to being experimented on and several having admitted in their opening sentence that they were not qualified to discuss the subject proceeded to write some hundreds of words giving their opinion. Over the early weeks there also appeared the religious theme " water should be pure and free from adulteration as God made it " and the diet-crank theme " It is rubbish to say it may be beneficial . . . The water has nothing to do with dental troubles which are mainly due to inferior bread . . . " The Medical Officer of Health was upbraided for not concentrating on more orthodox aspects of public health but in general the letters were remarkable more for their number and the range of objections raised than for their quality as propaganda material. There was a ring of sincerity about them and one felt that with continued education on the subject the objections would die down and that some new crusade would be found for the diehards. There was in fact a lull over the Christmas period such as has occurred on battlefields in the past, but by January, 1954, protests were pouring in to the paper, the Borough Council and the Health Department.

There had been a local body election in October, 1953, which resulted in a change of Mayor in Hastings and the election of five new councillors who had not had to give any serious consideration to

fluoridation until then. Not unnaturally members began to question the advisability of the scheme and in January the Medical Officer of Health was invited to address the Council in Committee. From a statement made to the press afterwards it was clear that they stood firmly behind the previous council's decision. One or two councillors questioned whether it should be compulsory as was inevitable with fluoridation of the town supply and this doubt apparently multiplied over the succeeding weeks as when put to the vote at the council meeting in February it was decided by only five votes to four that fluoridation should continue. (The one absentee had been a consistent supporter of fluoridation.)

By the end of February the objectors were organised and there were rumours of the formation of an Anti-Fluoridation Society. This eventuated following a public meeting on March 2, attended by little over 100 people. A committee of eight was elected with the object of " educating the public to the dangers attending artificial fluoridation of public water supplies and to take steps to terminate the experiment being conducted by the Hastings Borough Council ".

From then onwards the letters to the paper and the anti-fluoridation advertisements and slogans which began to appear showed signs of co-ordination.

Many " authorities " were quoted and it soon became obvious the society had ready access to anti-fluoridation literature originating in the U.S.A. It was later discovered that much of this came from an organisation called " The N.Z. Voters Policy Association ". Little is known about this association, whose only address is a post office box in Auckland and whose honorary secretary, E.C. Browne, signed his correspondence with a typewriter. Mr. Browne has since been identified but the aims and objects of his association remain obscure.

This imported propaganda was fed steadily into the newspaper and it concentrated on putting fear into the public mind, e.g., " Fluorine like insidious deadly Carbon Monoxide is tasteless, odourless and colourless. When you discover it has affected you it may be too late ", " Stop putting this poison in our drinking water ", " Wholesale medication of the people is an infringement of human rights ", " Fluoride is a poison that accumulates in the body and for which there is no known antidote ", " Promotes cancer and deafness ", " Apparent bad effect on school children's ability to memorise ".

The following advertisement appeared on March 13, " New

York, Los Angeles, Chicago, St. Louis, Seattle and Cincinatti have recently refused to fluoridate their water. Detroit has dropped fluoridation because it is unhealthy and deadly dangerous." This led the writer to write to the health authorities in these cities thus augmenting a correspondence with supporters of fluoridation in the U.S.A. which eventually proved invaluable in routing the Anti-Fluoridation Society. The replies from the seven cities mentioned above showed that Detroit had not rejected fluoridation and that in only two of the others had it been rejected and this in spite of urgent recommendations in its favour by the health authorities in the face of opposition similar to that being experienced at Hastings.

This advertisement typifies the unreliability of the propaganda that had to be contested. It consisted of bald statements against fluoridation made by " authorities " whose names in print looked most convincing. It took time to check their credentials with the U.S.A. health authorities and by the time one was discredited several more had been put forward.

The volume of newspaper and other correspondence was such that the writer and his head office in Wellington felt unable to cope adequately at a range of over 100 miles with a situation that was being organised by people both willing and able to devote a considerable amount of time to this single objective. It was clearly necessary to have sympathisers on the spot who were known and respected and could gauge local feeling and deal with situations immediately they arose. The obvious source of such support was the local branch of the Dental or Medical Association which had both published articles in the press supporting fluoridation and whose members were supporting fluoridation whenever the opportunity arose. However, before these bodies had been approached officially an inquiry came from the Hastings Junior Chamber of Commerce. All men under forty and with children of an age who could benefit from fluoridation, they had decided to investigate the situation and support the scheme if convinced of its value. The writer was invited to address them on the subject and this was later altered to a debate against the Anti-Fluoridation Society. The opposition speaker was a married woman from Napier (the control town) who had no special qualifications and who spoke along the lines that we would be better employed avoiding fluoridation and concentrating on eating a correct diet. Practically no reference was made to the dreadful consequences of fluoridation that had been claimed by the " Antis " in their press publicity and

letters either by the speaker or the two supporters who accompanied her. The audience could hardly have overlooked the conspicuous absence of a Hastings speaker from the ranks of those who had been so energetic in print and who could have taken this opportunity to attempt to discredit personally a project and a person whom they had not hesitated to criticise in no uncertain terms in writing. The Chamber of Commerce voted unanimously in favour of fluoridation and almost immediately a Jaycee Fluoridation Education Committee was formed.

The local newspaper had over recent weeks gone to some pains to publish both sides of the story and although always prepared to publish material supplied in support of fluoridation it also published with equal impartiality the statements and claims made by the " Antis ". The editor had already insisted on all correspondence being signed and less than a month after the Jaycees entered the field he declared that no further letters on fluoridation would be received for publication. From May 8, 1954, therefore, with the exception of a few factual articles obligingly published to refute earlier misleading statements that had appeared in the correspondence columns, all propaganda had to be paid for.

The Jaycees raised funds and announced their intention to " by every means at their disposal combat false, misleading and sometimes scaremongering publicity disseminated by opponents of fluoridation ". They proceeded to publish advertisements that systematically discredited the claims made by the " Antis " over the past months. Much of their material came from supporters of fluoridation in the U.S.A. whose prepared replies to objectors there had arrived in response to our requests.

In addition, a fabricated correspondence direct with Anti-Fluoridation circles in the U.S.A. resulted in a flow of their literature which enabled us to anticipate the attack here and have the answers ready. The Department of Health began a series of advertisements in support of fluoridation in the press and the Dental Association provided speakers to groups who wanted the situation explained to them. A rebroadcast was arranged from the local radio station of a talk on " Care of the Teeth and Fluoridation " given by Dr. Basil Bibby who was visiting his home country from the Eastman Dental Dispensary (U.S.A.) and who had been a member of the important Ad Hoc Committee on Fluoridation of Water Supplies which had reported favourably to the National Research Council in 1951.

In the meantime the Anti-Fluoridation Society had not been idle.

Soon after its formation a " Petition of Protest " to be presented to the Borough Council was organised and further scaremongering advertisements appeared in the press encouraging the public to sign the petition. To combat this the Jaycees conducted a quick Gallup poll and published their findings. Of 206 persons interviewed 149 supported fluoridation, 47 opposed it, and 10 remained neutral. They advised that many persons had announced they were losing their original fears and that 10 of the people interviewed who had signed the Anti-Fluoridation Petition had declared that they now wished to withdraw their names. One admitted he had signed " as a joke ". This Gallup poll did much to undermine the success of the petition, particularly as most of the reasons given for objecting could be discredited by the public from their own experience—" It has an odour ", " It killed my poppy plant ", " It causes dry mouth ", " My washing-up water won't lather ", " It stains my tea cups ".

The Jaycees played their trump card on May 18 when in conjunction with the Dental Association they arranged for Dr. F. A. Arnold (U.S.A.) and Dr. G. F. Parfitt (England) to give a public address on fluoridation. These two acknowledged authorities were by good fortune in New Zealand to attend a World Health Seminar and their address was probably the turning point in the campaign. They were the answer to the criticism that none of the supporters of fluoridation in New Zealand had had personal experience of the subject. (Dr. Arnold has been associated with the Grand Rapids survey since it started and Dr. Parfitt has had many years of research on fluoridation in England and the U.S.A.) Their masterly handling of questions and their obvious conviction and sincerity was stimulating and of equal importance was a gathering held after the address at which Borough Councillors were able to seek information from Drs. Arnold and Parfitt and settle any lingering doubts they might have. The doctors' addresses were, of course, fully reported in the press.

The petition presented by the Anti-Fluoridation Society some ten days later was received somewhat coldly by the Council owing to the informality of its compilation and presentation. It was, however, " received ". A cursory scrutiny by the Town Clerk revealed that many of its 4,700 " signatures " were invalid. Some were of persons resident outside the area concerned, others had signed twice or for several people and others were under age. In yet other instances the " signatures " appeared to have been written by the canvassers. The clerk was instructed to investigate the

position and at the Council meeting on June 27, he reported that the document was not a petition on several grounds, two important ones being that it contained only half the required number of signatures and none of these were verified by declaration. Consequently at this meeting in June the Council once again voted that the fluoridation scheme should continue and this time only two dissenting voters were recorded. Both these councillors objected principally to compulsion and considered that right of choice is desirable.

On June 26, a statement of over 3,000 words prepared by the mayors of Hastings and Havelock North was released to the press. It gave a clear account of events that had led up to the adoption and retention of fluoridation, stressed that local authorities must accept the advice of their medical advisers and pointed out, by giving a number of examples, that New Zealand's record in the Public Health field proves that " our advisers know their business ". The statement summarised well the salient points in support of fluoridation and has been acclaimed by a number of overseas Public Health Authorities to whom it was sent. It concluded with these words :

" Every consideration has been given to the objectors' views and now that a decision has been made, if any of them still disagree we earnestly trust that they will accept what has been done with goodwill and co-operate in what we are assured is an important forward move in preventive medicine."

Little more was heard of the Anti-Fluoridation Society locally from then on and their efforts were concentrated on letters to newspapers outside Hastings and an abortive effort to petition Parliament to amend the law to prevent a local authority putting into the water supply sodium fluoride " or any other medicine to treat a specific disease ". The petition was considered by a Public Petitions Committee who had no recommendation to make to the House of Representatives where the subject was discussed for about three hours. It received a considerable amount of support and a certain amount of criticism, particularly on the compulsion issue. In this regard the Hon. Minister of Health stated that a referendum is not the wisest for the community to decide. Properly the decision was one for the elected representatives controlling the water supply.

And there except for occasional letters in various newspapers the matter rests, but these occasional letters have appeared sufficiently often to suggest the necessity for communities to be

prepared to fight for this benefit for their children when the time comes. The major battle has been fought at Hastings but minor skirmishes can be expected in any community where fluoridation is contemplated. A heartening decision was recently made by the N.Z. Junior Chamber of Commerce at its Convention in October, 1954, to the effect that where a fluoridation scheme is being considered for a town's water supply "Jaycees" should ensure that all the facts are put before the people of the town. This may well be the answer to the problem.

Conclusions

The basic error made in many towns in the U.S.A. and repeated in Hastings was the failure to appreciate the necessity for an intensive and prolonged campaign to educate the public in this highly technical procedure which lends itself admirably to the type of opposition adopted by its opponents. It is equally important to educate and so gain the goodwill and understanding of the local press. This is a mistake that must not be repeated and any community undertaking this measure in the future would be well advised to remember the motto well known in this country "Hurry Slowly". On the relatively few occasions in the U.S.A. where fluoridation suffered a setback it was almost certainly due to insufficient health education on the subject, often occasioned by a premature referendum over which the health authorities had no control.

The ground must be prepared thoroughly and the local Junior Chamber of Commerce is the most likely organisation to do this. They will receive support from the Medical Officer of Health for the district, the branches of the Dental Association and Medical Association for the district and the Fluoridation Committee at the Head Office of the Department of Health is available for advice and guidance. Only by such a concentrated and prolonged effort can the Borough or City Council be guaranteed the support they deserve and will almost certainly need in deciding to adopt fluoridation. The position will of course become easier as fluoridation becomes better understood and we may soon reach the stage already being experienced in part of the U.S.A. where control towns will be difficult to find. Provided of course that New Zealand experiences the same reduced caries incidence as has been found overseas.

THE PROSPECTS FOR GENETIC IMPROVEMENT*

By L. C. DUNN, Institute for the Study of Human Variation, Columbia University.

LOOKING AHEAD is one of those risky occupations which can only be faced by doing just the opposite, namely by looking backward. What we shall know of the future will certainly be determined by what we have learned in the past ; and the real problem set for a scientist when you ask him about the future is to extend beyond the present day the lines of progress by which the science of yesterday became the science of to-day. It requires him to take stock of the significant advances of knowledge in the recent past, and to guess which of these show some prospect of profitable extrapolation in the future.

Of me it is required to take some stock of recent work in the field of genetics, the scientific study of heredity and variation. Heredity, of course, is the biological connection between the generations of plants, animals and men, the bridge over which passes the living substance which we inherit from father and mother and remoter ancestors. This is the substance contained in the egg and sperm from which each of us arose ; and it consists of an organised assemblage of thousands of living elements known as genes. The particular system of genes received by each individual —and each individual receives a different set—determines the kinds

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of responses we make to our environments. The peculiarities of each animal or plant or man are determined by this interplay or interaction between his genes and his surroundings, between his heredity and his environment.

Variations are novelties which arise in one component of this interacting system ; they are either due to changes in the genes, known as mutations, so that a new geneform responds in a different way to the same environment, or to changes in the environment, so that the response of the same set of genes is different. A newly arisen hereditary character like albinism, or spotted skin, or woolly hair, which expresses itself similarly in the usual environments, is an example of mutation : darkening or freckling of skin on exposure to sunlight is an example of a so-called environmental variation, although both kinds of variations, of course, are expressions of a particular system of genes (known collectively as the genotype) reacting with a specified environment or range of environments. The expression, that is, the appearance or behaviour of the individual is known as the phenotype. One of the main purposes of genetics is to understand the relations between genotype and phenotype.

Now we discuss the meaning of another term in the title : improvement. What we shall mean by improvement is something more advantageous for man than what he has now. However much we may speak of knowledge for its own sake or science for the sake of science, the ends of both are certainly and inevitably, although sometimes indirectly, for our human purposes, the betterment of the human condition and the increase of human happiness. The job of the scientist is to search out the rules of order by which nature operates. His domain is the real world of atoms and subatomic particles, their motions and actions whether in molecules, in genes, in living cells of animals or plants or men, in the crust of the earth or in the atmosphere or interstellar space. In this search his immediate purpose must always be to seek for reason and for order, even though the eventual end of human betterment has to be superseded or even sacrificed in the process. But he must from time to time do what we are asked to do to-night, come out of the laboratory or the study and make some assessment of where we are and where we are going.

Where, then, are we going genetically ? What are the prospects of improvement of the genotypes of the animals and plants upon which we depend both for food and for instruction ? (I put instruction almost on a par with food, for we must learn largely

from the other living things which we can control experimentally, something we are prevented from doing with our own fellows by moral and practical restrictions). What finally are the prospects of improvement in human genotypes? Concerning our own conservative, slow-breeding species, I should remind you that man, as man, has a long history of some 600,000 to 700,000 years and during this time no major changes in his structure have occurred, major in the sense that there is no evidence of a tendency for *Homo sapiens* to split into different species. What has occurred, is occurring to-day and will probably continue, is evolution on a comparatively minor scale zoologically, the formation of races and other more or less distinct groups of genotypes as a result of geographic and cultural isolation, accompanied by separation of populations, inbreeding, and adaptation to different local environments. We should, therefore, not expect any spectacular changes in the human animal in the two generations intervening between now and 2,000 A.D., an interval comprising only about 1/100,000 of man's history. However, changes in the proportions of a few of the many thousands of genes which comprise the total genotype are occurring within and between some human populations to-day and this is evidence, as I shall show, that such evolution is certainly continuing in our own species.

One way of discussing these questions is to draw up a kind of balance sheet of genetic improvements and disimprovements which we know from experience or by good inference to have occurred or to be occurring now in man or the animals and plants on which he depends. I hope to show you that to discuss either side of this balance sheet apart from the other has not much meaning, for all living things, man certainly not excepted, are parts of nature, which is a continuum of interacting elements in some kind of equilibrium. The balance of nature is no figure of speech. When the frequency of spinsters (in Darwin's old fanciful example) is connected with the quantity of the crop of red clover seeds through steps which lead through cats (kept by spinsters), field mice (hunted by cats), bumble bees (whose nests are destroyed by field mice), red clover blossoms (fertilised by bumble bees), the whole is figurative, but each step (except possibly the first) is a well-established fact. There is, as every ecologist knows, a balance in which predators and prey, parasites and hosts, insects, bacteria, viruses, and food-supply are interacting elements. Disturb one and you disturb the whole chain. So it is with the genotypes of animals, plants and men who all live in populations and societies of which the structure expresses

an internal adjustment of the members to each other and of the group to its surroundings.

I shall put down first on the credit side a change in the genotype of human populations in certain parts of the world which is probably occurring to-day, although the exact measure of it will have to be taken by another generation of geneticists. There is a usually fatal hereditary anaemia known as sickle-cell anaemia which arises in young children when the child has received from each of his parents a particular form of one gene, known as the sickling gene, since it causes the red blood cells, when under reduced oxygen pressure as in the venous circulation, to assume bizarre crescent-shaped forms. Such parents have only one such abnormal gene, the other member of the pair being normal, so they do not suffer from anaemia, although they can be identified by their blood picture as being carriers of the sickling gene, or having (as medical men say) the sickle-cell trait. This abnormal gene is common in parts of Africa (sometimes 40 per cent. of a tribal troup will have it) and in Sicily, and in their descendants in the United States, and around Lake Kopais in Greece, and large numbers of children regularly die from this terrible anaemia. This gene is most frequent in areas where malicious malaria (*falciparum*) has been hyperendemic ; that is, where nearly everyone has been exposed to the malarial parasite. One direct experiment by a British physician in Africa has shown that persons with one of the abnormal genes, (the trait-carriers), are actually more resistant to malaria than related persons with two normal genes. It appears that such carriers are at an advantage in malarial areas, so the frequency of the bad gene increases, and with it the number of children fated to suffer and probably to die from sickle-cell anaemia. Malaria, as we know, has been eradicated in America and Europe (including Sicily) by using DDT to kill the mosquitoes which transmit the malarial parasites from person to person. Persons having one sickling gene no longer have an advantage over normal people in Sicily, or in the United States, and we expect the frequency of the gene to fall, and with it the death-rate of children from sickle-cell anaemia. This should also happen in Africa when malaria is eradicated there. If it does, we shall have a most dramatic example of an undoubted improvement in a human genotype, obtained as a byproduct of an improvement of the environment by good public health methods. A similar story may be enacted with another hereditary anaemia, that is, thalassanaemia, or Mediterranean anaemia, from which thousands of children die each year in the formerly malarial areas of Italy,

Sicily, Sardinia and Greece, and in the United States where intermarrying descendants of immigrants from these areas have preserved the bad gene and will for several generations to come. But eventually these hereditary diseases will be rare all over the world.

Let us ask now what flies may get into this apparently good ointment. What if the mosquitoes should become resistant to D.D.T., as some other insects have done, by survival of those with mutations conferring immunity ? There is no sign of this yet, but all of this knowledge is only of recent date, and this is a possible, if not probable, sequel.

There is, however, an additional weight on the improvement side of the scale in these cases, because persons who will transmit either of these genes can be accurately diagnosed by a blood-test. If each such person would refrain from having children, all present anaemia genes would disappear from the populations, and we should have to fear only those which arise anew by mutation, probably a rare occurrence.

This suggests, of course, that if we could recognise, *in advance*, those persons who will transmit to their children haemophilia and other diseases known to be caused by an identified gene, such as certain forms of idiocy and imbecility and some other physical abnormalities, the means would be at hand for reducing such genes also to the status of rare genes of which the only examples would be those newly arisen by mutation. There are signs that this may occur for some genes well before 2000 A.D. The improvement will occur if the carriers of such genes have first the knowledge, second the means, and third the will, to refrain from having children. Alas, this knowledge has been available for certain dominant abnormal genes (expressed when received from only one parent) for a generation, but these genes are still with us. Either the means or the will or both are still lacking. With the spread of the knowledge and practice of contraception., which is certain to increase, some of this knowledge may be implemented.

These eugenic proposals cannot be efficiently applied by merely preventing the reproduction of persons suffering from hereditary diseases or abnormalities, usually rare, which express themselves only when two like genes (known as recessives) are received, one from each parent. Nature now prevents most such persons from reproduction, but the recessive genes persist in the parents where they cannot be detected until too late, after the afflicted child has been born. However, if persons known to carry such genes would voluntarily refrain from having *as many children* as persons who

do not carry these genes, some progress in reducing their frequency might be made.

We shall cite briefly only one other case of improvement in a genotype to show that some probable improvements may be of a temporary character and perhaps balanced by disadvantageous outcomes. The past century has seen a great growth of cities and the consequent break-up of the village communities in which many western peoples lived and married. Certain abnormal genes have been found to occur in a few such small marriage circles or isolates, and when two people, probably related, from the same village marry there is a greater risk that they should each transmit the same abnormal gene, received from a common ancestor. When such persons marry in the city, there is a better chance that they will marry someone without the same abnormal gene. This reduces the likelihood of the birth of a child with two genes of the same abnormal form ; hence the frequency of such an hereditary abnormality should fall. But now the bad genes are more widely distributed and less likely to be reduced by the death of diseased children, each of which carries two of the bad genes out of this world. They thus tend to escape from the control of natural selection which kept them in check, although at a cost of suffering and death, in the villages. But if genes with highly favourable effects under all environments should become more widely dispersed, the urban concentrations of the future, provided they are real melting pots, might confer biological blessings beyond the mechanical, social and aesthetic ones by which we profess to justify our choice (generally involuntary) of a metropolis with dirty subways, littered streets and a generally hectic and precarious life.

I have only a little time for two topics which I am certainly expected to discuss, but these, I believe, involve applications of principles which I have tried to illustrate in the above examples. One, of course, is the effect of the use, both military and industrial, of atomic energy, which is bound to increase the hazards of radiation-injury to the genotype, from which we now suffer to a limited extent due to the so-called normal or background radiation from a mildly radioactive planet and universe, and at the hands of some incautious or X-ray-happy physicians. There seems little doubt that these hazards will increase, especially if some super-bombs go off anywhere above our continent or in our waters. There is no doubt either that increases in the radiation to which living organisms are exposed are followed by increases in the rate of gene mutation, and that most newly arisen mutations have deleterious effects. I

do not belong to the prophets of doom, but I cannot view as biologically bright a future in which these hazards will increase. It is true that populations adapt their biological structures in the long run to new hazards and new mutations—but how long is a " long run " for our species ? And how much immediate suffering can we tolerate ? If we have a choice, none of us would choose to invite the risk implicit in such horrible engines as the H-bomb from which we (and *we* means all human beings) may expect only disimprovement for our species. Meantime we must develop pre-treatments which will counteract the mutagenic effect of radiation on our tissues and germ cells, and ways to do this have already been explored. Before we descend into the deep shelter, we shall have to take our pills or a nitrogen tank down with us, and it may be that there is no hiding place down there.

For the captive species on which we ourselves are parasites, especially our crop plants, there is some hope, predicated on solid achievements especially of the Swedish plant breeders, of further improvements in yield and quality through the use of carefully controlled radiation. Already grain-varieties have been produced by selection and recombination among radiation-induced mutations which extend the range of profitable crop production several degrees northward, and there is no reason why this method should not yield further improvements. But I suspect that the mutation process involves chemical steps which will provide more effective and less risky entrees to the great problem of the future in this field—the deliberate control and direction of mutation in specific genes or groups of genes. We shall certainly be nearer to that goal by 1975. Perhaps it will be achieved by 2000.

The second point of these two is : what are the prospects for changes in the genotypes of the world of microscopic life on which we depend and which holds over us continual threat and hope—the world of protozoa, bacteria and viruses ? Here the fact of balance is clearly established. No sooner had we gained control over some pathogenic micro-organisms through the use of antibiotics than we found the parasites able quickly to adjust themselves to the new hazard. Micro-organisms have survived so many such hazards in the past, that they have evolved as a result of their history a plasticity due to random mutation by which, if resistance to streptomycin is advantageous, lo, the mutations are already present, and such mutant types survive as streptomycin-resistant strains. More than that, some of them now require streptomycin and cannot survive in competition without it. We keep one jump

ahead only by discovering new antibiotics, by inducing mutations in the moulds that produce the antibiotics (such as pencillin) so that they produce a greater quantity of antibiotic, and by learning the metabolic systems of the micro-organisms with which we must continually contend. I believe we are smarter than they and shall win. But we may kill some good friends in the process, for many of the constructive activities of plants, animals and men cannot go forward without some of these symbiotic beneficent allies. Meantime we have, by applying the same principles, conquered some of the most formidable bacterial and virus diseases of crop plants by breeding genotypically resistant varieties, one of the great triumphs of plant-breeding. The field of the genetics of micro-organisms is one of the currently brightest spots of the whole science, chiefly because new ideas about the gene itself are coming from it, and this glow falls especially on the future, for where new ideas are now, new facts will follow, and after that a new order which brings us nearer to our goal.

This brings me to my last point, and for this I should like to abandon the checks and balances of the ledger and speculate with more freedom, though I hope not with less responsibility. What does the biologist whose tools are genes speculate about when he leaves the laboratory and stands before an audience like this? What are his reasoned hopes for the next 50 years? I have already made some optimistic statements about prospects for controlling the genotypes of the most rapidly reproducing organisms, bacteria and viruses, and as a consequence, reducing the toll of disease on human and especially crop-plant populations. Two useful organisms with annual generations—Indian corn and chickens—have been greatly improved in the past 25 years, both by selective breeding and by controlled heterosis, the bonus of vigour and yield obtained in first generation crosses between different genotypes. This can certainly be extended to other cross-breeding plants and animals. New sources of food will probably be made available by favourable mutations in unicellular green algae yielding cheaper carbohydrate, and in yeasts, yielding more and better proteins. Now that we know that the chief organic catalysts, the enzymes, are controlled by genes, we can surely harness these for human purposes.

The greatest recent increase in our knowledge of human genotypes has come from the combined efforts of serologists and geneticists working on human blood group genes, of which a dozen major systems are known, some of which consist of many elements, so

that by combination of these literally millions of different genotypes become possible. The day is not distant when the uniqueness of each human individual will be proved from his blood group genes alone. As a byproduct of this knowledge one cause of infant mortality, haemolytic disease of the newborn, is now controllable. Relations between some of the other blood group genes and specific diseases (for example between blood group O and duodenal ulcer) have recently been proved. Others are certain to follow quickly. Genetics has entered medicine, and diagnosis of human genotypes must soon become an essential part of the practical knowledge of the physician. Human genetics will shortly have an efflorescence which will put it in the forefront of the sciences contributing to human welfare, with profound social effects.

I shall not try to summarise this review and preview except to point out that wherever improvements, past or prospective, appear, they are associated with (or I suppose judged by) increased control and increased efficiency or effectiveness of scientific method, and this constitutes empirical knowledge, if not understanding. On the other hand, the other side of the ledger shows, on balance, the greater precariousness which is to be, for better or for worse, the condition which will dominate the existence of our descendants in 2000 A.D. That is a condition which ignorance, unreason, prejudice, even lack of rapid scientific advance, could quickly make entirely untenable for civilised man. Once we have got the jump on nature, we shall have to keep on jumping faster and farther. This is to say that we shall become increasingly more dependent on our wits, those specifically human attributes such as tool-using, and the use of language with its corollary, thought—in short on cultural development. Surely that is no novel conclusion. Twenty-five hundred years ago an anonymous preacher told his people : " Wisdom is the principal thing : therefore get wisdom ; and with all the getting, get understanding." To-day we should remember that more of that task lies ahead of us than behind us.

International Report

MENTAL HEALTH ACTIVITIES IN FINLAND*

The rapid progress made in the sphere of material culture as well as the changes taking place in society, even in respect to the structure of the family, place ever greater responsibilities on the individual in his efforts to adjust to new conditions. It would seem that man himself is not capable of keeping up with progress. On the other hand, it is known that the individual human being's capacity for adjustment depends on constitutional factors as well as his psychological equilibrium, which in turn are largely dependent on the conditions surrounding the individual during his childhood. Consequently, it is desired in preventive mental hygiene work to teach parents and others responsible for rearing children what the child needs in order to develop into a balanced and adaptable personality. In the job of enlightening parents and guardians, particular attention is nowadays focussed on the child's needs. Special emphasis is laid on the significance of gentleness and affection to the growing child.

The attitude of parents toward their children is, in turn, determined by the constitution of their personality, which has largely formed as a result of the way they were brought up themselves. Psychological knowledge of this kind is sometimes, therefore, not easy to pass on to parents and guardians. On the contrary, there appear difficulties to bring some educators really to accept the data offered by science concerning the psychological make-up of man. The difficulties spring in part from the unsatisfactory methods generally applied in training parents for their duties. The most usual method has been for an expert to point out in lectures, literature, etc., all kinds of errors committed by parents or likely to be committed by them in

* Extract from a report on Mental Health Activities 1953-1956, published by the Mannerheim League for Child Welfare, Helsinki, Finland.

rearing their children. The aim has been to offer a stock of practical instructions and even commands, whereby the needs of children might be satisfied toward their perfect development. The attainment of knowledge, it has been assumed, is the way to prevent the occurrence of emotional disturbances. However, the mere transmission of data is liable to cause parents only conflict and fear. The dynamic whole formed by the human psyche and the totality of the conditions of life have been overlooked. Psychological insight, after all, should be applied in public education in as many ways as there are parents. The parents' own traditions and instinctive actions must not be thrust aside arbitrarily.

Parents' actions based on the advice of experts are also liable to transmit fear and confusion to children when parents have not sufficiently grasped the said advice. Children have not always been given the opportunity to develop actively and they have not always enjoyed a sufficiency of positive opportunity for identification but have been violently subjected to the rules laid down by psychology.

Attitudes toward the rearing of children have formed as parents have grown, based on the parents' own upbringing, on their experiences of their own parents and other people. Accordingly, notably erroneous attitudes can be best modified with the help of other people. Success is not always achieved in this simply by mechanically acquiring knowledge. Possible tensions must be eliminated, and this cannot be done in solitude, without other people. The relaxation of tensions can be achieved only in the company of such persons as accept, understand, respect and like the subject. Thereupon he is enabled to live down his disturbed relations. The individual relives within the group his family drama, and in a " tolerant ", skilfully guided group he is provided the chance to live it in a positive, " good " way.

The aforementioned principles have been applied in planning more effective and less dangerous methods of adult training. Group activity has been adopted in endeavouring to help parents acquire wholesome and as good attitudes as possible in respect to the rearing of children. The educational discussion group programme of the Mannerheim League for Child Welfare aspires insofar as practicable to follow the principles of group work.

On the basis of the experiences gained in educational discussion group work it has been observed that members join a group with the idea at first, perhaps, of gathering information ; but at the

same time, consciously or unconsciously, they are motivated by a desire to make contacts with other people, that is, to satisfy their intellectual and socio-emotional needs. The individual seeks from the educational discussion group knowledge about children, child rearing and human psychology. Simultaneously each member seeks personal recognition, social acceptance, respect from his fellows and friendship.

At first the members of the group are generally strangers to each other, submit cautious statements, are suspicious, fearful, reticent, perhaps affected and even tense. Their defence mechanisms operate in the beginning full blast. A large proportion of the members are also likely to remain quite silent and not participate actively in the discussion.

After the group has functioned for some time, changes gradually take place ; the group process gains momentum. A network of emotional relations and ties between the members develops. By means of these emotional conditions opinions are borrowed from other members and through the process of identification new psychological attitudes are formed, Simultaneously, the members gradually begin to feel strongly their belonging to a group and being responsible for its activity and spirit. Likewise, they begin to identify themselves with the leader, for they begin to regard the leader as an equal and as one member of the group.

Gradually, the integration of the group has been carried so far that members are ready to give relevant attention even to contrary statements by their fellows, because these are accepted as equals. Such a development may be observed in the group member that he feels himself gradually grown into fullfledged membership, with a wholly secure position. Accordingly, he is enabled to abandon his defensive attitude and thereby his stereotyped opinions. After all the members have achieved a firm sense of their status, of full rights and full responsibility, the group has attained to serene, balanced maturity. Then can it act with full effect about the matters at hand. The attention of every member is wholly concentrated on the subject under discussion. The members have laid aside, so to say, the proprietary rights to their own ideas. The thoughts and insights arising are experienced collectively, which is as it should be, for alone the members could scarcely have made as much progress in their thinking as through group collaboration. The individual is not, however, subjected to any compulsion to join in any specified trend of opinion but is at liberty to adopt whatever he

deems right from the expressions of thought at hand, for the prevailing atmosphere is free, unforced, and stimulating to mind and sentiment.

In an educational discussion group the leader need not always be a regular expert in the rearing of children ; rather his task is to direct the activity of the group — or, better said, to help and guide instead of to direct. Fundamentally, success in forming and integrating a group out of a heterogeneous gathering of people depends on the leader. His chances are all the better, the more balanced and healthy of mind he is. The leader of the group must accept every member as such ; he must be warm of personality and heartfelt in his relations, reliable and just ; he must not act the part of judge or pedagogue ; he must be sensitive and intuitively understand the feelings of others. He must have the ability to listen, to tolerate varying opinions and to make people feel comfortable in his presence. A good group leader is able to persuade inhibited and shy members to speak up, carefully restore dominating types to democratic order and make unnecessary the development of opposition attitudes. By his gentle example he must overcome hostile feeling.

Training of Group Leaders

Without trained group leaders the educational discussion group programme as outlined in the foregoing would not be possible. Accordingly, on the basis of the experiences gained in educational discussion group work during the preceding couple of years, the Mannerheim League started the systematic training of group leaders in the autumn of 1955 in its various administrative districts throughout the country. In the initial stage the training was given in the form of two-day courses. Stress was laid primarily on theoretical and practical instruction in group work. In spite of the fact that the task of the group leader is, by and large, only guiding the group, it is advisable that he is as familiar as possible with the basic problems of mental hygiene as bearing on education. With this in view, the programme of courses has included lectures on the latest developments in dynamic psychology.

The group leaders are selected from among the personnel of local branches of the Mannerheim League. They represent numerous different callings : teaching, nursing, medicine, religion, etc. Among them are also ordinary mothers and fathers. It is most important that the group leader possess such personal traits as make him a centre of gravity and an equalising force within the

group. At the moment, some 300 persons in different parts of Finland have received basic training as group leaders. Inasmuch as the period of training during the initial stage is very short, plans have already been drawn up for further training later on, when special attention will be given to making it possible for each group leader to experience the group process to the hilt.

Educational Discussion Groups

As the educational activity has progressed, the number of educational discussion groups has grown by leaps and bounds. Right now, there are approximately 200 groups in operation. A striking feature is that the need for educational discussion groups appears to be greatest in areas where industrial expansion, or some similar development, has brought considerable cultural change.

It would appear that mothers — as might be expected — take part in this group activity to a notably greater extent than fathers. In most cases the groups are made up exclusively of women. It has been endeavoured to bring fathers, as well, along to group meetings, so as to even out the attitudes of both parents toward the matter of rearing children and to distribute knowledge in equal portions to both, concerning the problems involved. It has proved advantageous to those concerned as well as the parents that the group membership has also included, in addition to parents, other guardians of children or persons acting in an advisory capacity in such matters.

A very useful aid in group activity has proved to be the educational discussion group film strips, which the mental hygiene bureau of the League has produced for the express benefit of the groups. By means of happenings taken from workaday life and recorded on these films, it is endeavoured to stimulate discussion on various educational attitudes and their bearing on the development of children. The characters represented in the films express various opinions and views on the educational problems brought out. Behind these different ways of reacting to situations the group members intuitively perceive educational attitudes that either fit in with their own or clash with them. This is bound to stimulate the members to express their own views. The intention is to bring out the members' own attitudes during the active discussion following and in that connection project them in a new light. The use of film strips, which has become extremely popular, guides discussion into specific channels and helps systematise group activity.

Toward bringing about lively and concentrated discussion, dialogues have also been prepared for group meetings. These dialogues are presented by members at the start of a meeting. Like the film strips they deal with problems of child education. In addition to the film strips and dialogues, talks written at the bureau and passages from the literature on the subject as well as articles from *Tervelapsi* (*The Healthy Child*), published by the Mannerheim League, and other magazines have continued to be read aloud at meetings of many groups. However, the groups seem to abandon such readings as the training of the group leaders progresses and film strips become available. The situation depicted in a film is always more vital and graphic, stimulating the members of the group to animated discussion.

Other Mental Hygiene Activity

In order to arouse public interest in questions of mental hygiene, particularly as related to the rearing of children, widespread publicity and educational activity has been carried on. Members of the main office staff have lectured at various gatherings called together by local organisations affiliated to the League in many parts of the country. The district boards and the local branches have organised educational meetings for the benefit of the public at large as well.

The lively interest of the press in the mental health programme of the League is proved by the fact that most of the newspapers in the country have published special interviews and reports on the subject. Numerous magazines have likewise dealt with problems of mental hygiene. The League's own periodical, *Terve lapsi* (*The Healthy Child*), has continued to feature articles on such subjects as the punishment of children, the position of a child among brothers and sisters, the meaning of mother-love, flattering a child, etc. In the spring of 1956 the Finnish Broadcasting Company arranged a discussion on the educational discussion group programme.

In addition to film strips dealing with the problems of bringing up children, the mental hygiene bureau has prepared other educational material as well. Numerous lectures on mental hygiene have been duplicated and distributed to the pupils enrolled in the League's courses on home management and other subjects. Furthermore, the previously begun series of guide booklets on "Special Problems of Child Care" has been continued for distribution by the child welfare clinics to mothers.

FILMSTRIPS

The following four filmstrips have been produced by Camera Talks, 23 Denmark Place, London, W.C.2, in collaboration with certain public bodies or commercial firms. Although the colour photography is for the most part attractive, the quality of these productions as a whole does not compare favourably with others on the market; moreover, they are expensive. The notes that accompany the strips are carelessly compiled and produced.

VACCINATION AGAINST SMALLPOX. (Camera Talks for L.C.C. Public Health Department. 1956. 18 frames. Colour. Notes. Price 52s. 6d.)

The opening frames show a child and a man suffering from smallpox (sad enough, but not horrific), photographs (out of focus) of passengers arriving by air and sea, and possibly carrying the disease, and a map of the areas of the world in which the disease is prevalent. Then, in a series of good photographs we are shown the story of a child's vaccination from the stage where the health visitor advises the mother at home, to the welfare centre and the safe, painless, successful vaccination.

This should be a most useful strip for welfare centres and health visitors to help to persuade mothers to bring their children to be vaccinated; the nurses, however, should make use of the opportunity to tell mothers quite clearly that the baby will not be ill and that they will not be involved in any extra work: these points are not brought out by the pictures, but might well arise during discussion.

HAPPY IN THE NAPPY. (Camera Talks for National Baby Welfare Council, with Johnson & Johnson. 1956. 19 frames. Colour. Notes. Price 52s. 6d.)

The notes describe a day in the life of a 12-month-old, from the baby's point of view. It includes meals, rest, play and bath as well as nappy changing (or "nappie", as the filmstrip has it). This is illustrated by pretty pictures of a very attractive child.

In five of the frames Johnson and Johnson's products are all too evident, and in the last frame all their baby products are displayed. The strip appears to be an advertisement for the products of this firm and has very little objective teaching value.

HYGIENE IN THE HOME. (Camera Talks for the manufacturers of "Lifeguard". 1956. 19 frames. Colour. Notes. Price 42s.)

A sectional diagram of a house shows the places where dirt can cause danger to health—the cistern, the W.C., sinks and drains, dustbin and larder. These points are then illustrated by good photographs (but in a different order) of an ideal home with model owners who do all the right things to keep the home clean and germ-free.

The notes are very full and contain no advertising matter except (quite properly) the credit title; but the photographs are not so exemplary in this respect. In addition to the words "Hoover" and "Mansion Polish", the word "Lifeguard" appears at least four times. Apart from this obvious disadvantage the strip could be valuable in the hands of a good teacher.

HOME SAFETY—5. (Camera Talks in co-operation with Central Council for Health Education. 1956. 18 frames. Colour. Notes. Price 52s. 6d.)

The filmstrip illustrates ways in which parents can protect their children from accidents in the home. The twins Jennifer and Jean, about 12 months old, are shown in a number of everyday home situations, such as crawling, standing up by the table and cooker, playing in front of the fire and in the cot and pram. The notes explain the normal precautions taken to prevent accidents: gates on stairs, tablecloth turned in, fireguards, medicines locked up, sewing basket out of reach, and so on. Incidentally, opinions vary about the advisability of turning pot handles inwards on the cooker because they get too hot for the cook: turning them towards the back of the cooker is just as effective a precaution (and is in fact recommended by the L.C.C.).

The photographs are generally of a good quality and the effect is pleasing, except for one or two frames which are rather dark. The notes give an outline of a valuable talk for parents, for which the strip provides interesting illustrations.

On the whole, this is a good production but for evidence of carelessness in the writing of the notes (for example, "stops" for "straps") and

the other minor points already mentioned.

The next two filmstrips come from Tartan Filmstrips, 185 Lady Margaret Road, Southall, Middlesex, who have recently extended the range of subjects they offer. Both have captions and are served up without accompanying notes.

THE CIRCULATION OF THE BLOOD. (Tartan Filmstrips. 24 frames with captions (no notes). Black and white. Price 7s. 6d.)

This filmstrip describes by means of diagrams the circulation of the blood ; it uses the analogy of transportation in a civilised community. Railway trucks labelled " food ", " oxygen " and " waste " are loaded and emptied at the appropriate places, e.g. the intestines and lungs. The strip concludes with a mention of body temperature and the disposal of surplus heat.

The drawings are well done in an informal style but it is doubtful whether the analogy is really helpful. In the course of simplifying the subject for children one cannot avoid a certain loss of precision ; it seems a pity, however, that the heart should be shown with six orifices and that no mention should be made of carbon dioxide, the disposal of which is one of the most vital functions of the blood.

MILK—FROM COW TO DOORSTEP. (Tartan Filmstrips. 15 frames with captions (no notes). Black and white. Price 7s. 6d.)

The subject is simply described in a series of informal sketches and diagrams. After four useful introductory frames the strip deals with hand and machine milking, straining and cooling, the various precautions against germs, and distribution in bottles and cartons.

This filmstrip could be used by teachers of junior children.

HELEN COPPEN.

BOOKS

THE SEXUAL, MARITAL AND FAMILY RELATIONSHIPS OF THE ENGLISH WOMAN, by Eustace Chesser, *et al.* (Hutchinson's Medical Publications. 1956. Pp. 642. Price 75s.)

Here is a book which sets out to explore in systematic fashion the associations between facets of early upbringing and marital happiness. How serious a contribution do its 600 odd pages, its 479 tables and its 81 charts make to our understanding of family relationships ? This, it seems to me, must be the chief criterion by which its worth is judged.

The book is based on the replies of some 6,000 women between the ages of 18 and 60 to questions concerning their early upbringing and adult experiences in, and attitudes to, sex and marriage. Nearly all the questions had to be answered by a simple " yes " or " no ", or by ticking one of the several alternative answers provided. The questionnaires were distributed by some 1,500 medical practitioners who were asked to see that they reached a random selection of their female patients. They were returned direct to the investigators in a pre-paid sealed envelope.

Our conclusion as to how serious a study this is must be based in the first instance on an assessment of how representative of English women as a whole these 6,000 women were. The authors, themselves, are disarmingly self-critical on this point. In chapter 2, they show that their sample is over-weighted in favour of the under 40's in the age range 18 to 60, that it includes a larger proportion of the wives and daughters of professional and business men than is to be found in the general population, and that in certain other respects—for example, income level and education—it is unrepresentative. They therefore rightly warn the reader of the danger of drawing conclusions about the experience of English women generally from the results of the enquiry.

Readers should not dismiss this

warning lightly as the usual caution of the academic research worker, for the biases in sampling may be even more serious than the authors themselves are willing to acknowledge. For example, whilst accounting for the bias admitted by the medical practitioners in their choice of women, the authors do not seem to have considered the possibility of unconscious bias on the part of doctors towards certain types of women. Nor have they allowed for the probability that those who were asked by their doctors to complete the forms but did not do so, have very different attitudes to questions of sex and marital relationships from those who completed and returned forms. In short, for these and other reasons, it is unfortunately necessary to re-emphasise the authors' own warnings to the extent of saying that the sample is probably unrepresentative not only of English women in general, but of the different age, occupational, income level, and religious groups, of which the total population is composed.

How much reliance can be put upon the answers given by these 6,000 women? I think the authors are right in suggesting that the impersonal method of approach has certain advantages over the personal interview when it comes to obtaining reliable information about sexual practices and intimate human relationships. Yet, among adults of average intelligence, internal consistency of response to a questionnaire such as this, cannot be taken to imply, as the authors suggest, inherent reliability. We know that certain groups are less inclined to self-analysis than others, and in an enquiry of this kind such differences may make nonsense of the groupings used. For example, it is likely to be much easier for someone brought up in an atmosphere of social and religious scepticism to admit childhood unhappiness than it is for someone who has been taught and who still believes that not to honour your father and your mother is a mortal sin. Some such factors may account, for example, for the greater proportion of women from strong religious backgrounds than from weak ones who said that their childhood and marriage had been exceptionally or very happy.

In short, we cannot infer that the groups into which the women were divided according to their stated feelings are truly differentiated, even at the level of "subjective" reality.

The general conclusion that we must unfortunately reach, therefore, is that great reliance cannot be placed on the validity of the findings. This is unfortunate, because one is only too anxious to applaud the boldness of the director's enterprise and the painstaking labours of his collaborators who have at least succeeded in showing the relationships between the various responses among the group of 6,000 women.

The study has interest, and therefore value, for the serious student of human behaviour. It demonstrates, for example, the sort of changes in child up-bringing and in sex mores which have taken place in the last 30 years. It also shows that among these 6,000 women certain types of experience in childhood were associated with certain behaviour patterns in pre-marital and marital life. This does not constitute proof that similar associations would be found for the generality of British women; but it does suggest a number of reasonable hypotheses which can be put to the test in further, more rigorously controlled, enquiries.

MARGOT JEFFERYS.

REPORT OF THE COMMITTEE ON MALADJUSTED CHILDREN. (H.M.S.O. 1955. Pp. 180. Price 6s.)

The Underwood Report of the Committee on Maladjusted Children should be read by all who are concerned with the education and treatment of disturbed children. Although the Committee was set up by the Ministry of Education with terms of reference limiting it to special educational treatment, its members wisely exceeded their mandate and viewed the problem as including the pre-school child and saw him as a member of the family.

Forty-four out of the Report's 97 Recommendations refer to the child guidance services and an authoritative appreciation is given of the team approach to the child's problem, the dynamic understanding of his developing personality and the fact that he is an individual reacting to his environment. From this follows the recommendation that admissions and discharges to schools or classes for maladjusted children should be effected only after investigation and advice by the child guidance clinic. Thus it is not merely educational advantage, but

the child's needs as a person, which are to be considered in making such decisions.

The new category of maladjusted child was created in the 1944 Education Act, so that the figures of 3,294 attending special schools and 804 awaiting admissions (Ministry of Education Act Report 1954) are impressive. The Underwood Report explains the difficulty of making any assessment of the extent of the problem, but educationists and social workers in all fields related to children have knowledge of the fact of widespread maladjustment, and for them this study is of prime importance. It should serve as a stimulus to research and an encouragement to an enlightened approach to the problem of the maladjusted child.

ROBINA S. ADDIS.

NONE CAN BE CALLED DEFORMED, by Vernon Mallinson. (William Heinemann. 1956. Pp. 214. Price 12s. 6d.)

The problems faced by all human beings in relation to one another take on a peculiar urgency in the case of those who have been given to believe that they are in some fashion exceptional. The dull, the backward, the precocious, the ailing or the malformed are as sensitive as their less conspicuous fellows to the impressions which they make upon other people ; and for all of these there is a special temptation to believe that they are rejected, inadequate, disliked or despised.

In a recent addition to the Heinemann Education Series Mallinson illustrates this thesis by a moving plea for the children who are physically deformed ; and with an analysis of the stories of thirty-six adolescent boys and girls he substantiates the claim that a crippled child is in essentials more like other children than parents and teachers have often been led to suppose. To his healthful development the satisfaction of the basic psychological needs is contributory ; and only in response to the satisfaction of these needs can he attain the sense of security which will permit free interaction with others as well as a realistic acceptance of the nature of his handicap.

The book is of interest to all. It is only too easy to exaggerate the nature of any imperfection and to underestimate the effect of attitudes, gestures and personal comments. Through studies of this kind greater wisdom may be developed in the daily contacts of each one of us.

C. M. FLEMING.

UNSETTLED CHILDREN AND THEIR FAMILIES, by D. H. Stott. (University of London Press. 1956. Pp. 240. Price 16s.)

After Dr. Stott's previous work people are likely to await further efforts with some interest. In the introduction to this latest book he says, quite rightly, that in all the nation-wide discussion of delinquency emphasis has been laid on the importance of sound family life, and he comes to the conclusion that this may remain a mere generality. He goes on to ask what is a sound family life, asserting that all families are somewhat inadequate. It is not obvious which inadequacies matter and which do not. This book sets out to provide an answer by offering a technique of diagnosis which is described as a " matter-of-fact " one in the literal sense, in that it is based on evidence of behaviour. A rather daring claim is made that the method is safe for those professionally concerned with children, but without clinical training.

Dr. Stott adopts the fundamental concept of the human being striving to establish and maintain certain relationships with the world around. In the early chapters (which are adapted public lectures previously delivered orally) attention is drawn to our need of means of diagnosing the forms of social maladjustment which are likely to lead to social failure. It is implied that the book provides a technique for summing up an emotional situation in a matter of days in such a way as to enable those concerned to put the matter right. In dealing with this Dr. Stott tilts at I.Q.s in particular and psychological tests in general, treating them superficially rather than as instruments of any real value. The comments here, however, are trite and can only be said to be appropriate to bad psychological testing. Such tilting seems a little out of place in a book which purports to give a scientific method for the use of those untrained therein. It does not seem very helpful to present as new the definition of diagnosis as an attempt to understand what is wrong in an attempt to put it right. Indeed one is tempted at times to feel that many familiar ideas have

been dressed in new words, especially when we read, for instance, about " the biological purpose of executive reactions used to ensure more favourable conditions for living ".

The author proceeds to enumerate and describe six patterns of response to emotionally unsatisfying conditions and then, in connection with these, five guiding lines in the process of diagnosis, namely : the child's reaction to people, to his parents, the reaction of the two parents to the child and relationship between mother and father. This leads to twelve patterns of family situation. It must be admitted that the author issues a warning against misuse, by rigid application, of this guide, but the implication of its desirability must inevitably have a powerful effect on all but those who, by reason of training, are already sceptical.

It is urged that parents should be brought to look on the child's behaviour as an indication of how life appears to him. The unwary, reading this book, may be misled into feeling that this is an easy process. The author's depressing statement that human character has a discouraging fixity is not likely to counter-balance this. It is characteristic of the sometimes irritating superficiality of the book that there occurs a sweeping statement like " nine-tenths of family troubles can be cleared without psychiatric intervention ". The examples of diagnosis and treatment, including correspondence involved, are naive and superficial. They could be taken as misleading practical tips.

One section of the book is entitled " General Theory of Maladjustment." This is described as being set out in terms of the first principles of the individual's reaction to the environment. It professes to be a thorough-going analysis of maladjustment, but at times seems more like a re-statement in somewhat cumbersome terms, such as " irritable - depressive - non-tolerance." The final objective in discovering and diagnosing these states is said to be a better understanding of the individual case rather than that of classification. but the reader is left with the impression that the author has revelled in classification for its own sake.

The method of observation and recording advocated in this book is a useful one when used by trained workers to obtain useful comments from untrained assistants. The danger lies in the implication that diagnosis and treatment are comparatively easy if only the individual concerned can be fitted into one of the categories prepared. The book is interesting if it is read critically, but bewildering and possibly dangerous if not.

J. WILSON WHEELER.

THE PSYCHIATRIC INTERVIEW, by Harry Stack Sullivan. Tavistock Publications Ltd. 1955. Pp. 246. Price 28s.)

The ability to learn exposes us to the peril of learning error. Error leads to maladaptation. Maladaptation leads to progressive pain and frustration, to insecurity and swollen defence. Defence leads to isolation and precludes learning. At this stage the " client " wishes to learn—how to free himself from pain, to become more efficient, etc. This leads to the psychiatric interview.

Dr. Harry Stack Sullivan attempts to formulate principles for successful interviewing. His strategy aims at the recognition of the patient's characteristic patterns, his tactics at successfully communicating them to the patient, who is then able to forsake them for others more adequate to the satisfaction of his needs.

I enjoyed the book, and found much of value in it. The compilers have included a list of " Diagnostic Signs " which could well have been omitted. They are too scrappy to serve the ignorant, and of no service to the expert. The bulk of the book is made up of lectures given by Dr. H. S. Sullivan to students in 1945. Thus they tend to be wrenched out of their living context. This could be remedied by a slight alteration in technique, namely, by making available sound-recordings of the actual psychiatric interviews against which the appropriate comments could be checked.

M. ROBB.

CHILDREN AND SLEEP, by Ronald S. Illingworth. (National Association for Mental Health. 1956. Pp. 15. Price 1s. 5d., post free.)

This little pamphlet is a valuable addition to the Parent Guidance Series designed for mothers of young children and for all those interested in parent guidance. The author shows a keen understanding of the problem of babies who won't go to sleep and has some helpful advice for parents who are

trying to develop a calm bedtime routine. The booklet is illustrated with attractive sketches and is especially suitable for distribution through Parents' Clubs and Maternity and Child Welfare Clinics.

E. PARRY.

YOUR PREGNANCY, by John Pougher, with chapters by Molly Pougher. (Wm. Heinemann Medical Books. 1956. Pp. 109. Price 3s. 6d.)

The authors of this pocket-size edition have produced a book at an attractive price and a useful size. It is written in a style which is both interesting and easy to read.

In its short concise chapters most of the facts and queries which all expectant mothers to-day need to know are adequately covered. Many practical hints are given, especially regarding clothing for both mother and baby, but all would not agree that a pillow is necessary or even desirable for an infant.

The chapters on ante-natal exercises may give rise to some controversy, but the technique of relaxation is very clearly given.

The section dealing with benefits and services available under the National Health Service is quite excellent, although it is not made clear that dental treatment for an expectant mother is free.

I can recommend this as a useful little volume for young parents-to-be.

D. K. NEWINGTON.

IT'S TIME YOU KNEW, by Gladys Denny Shultz (Darwen Finlayson Ltd. 1956. Pp. 191. Price 10s. 6d.

Many adults who read this book will wish it had been written when they were young. It differs from so many works on sex education which adopt a patronising and moralising style. Mrs. Shultz has a warm-hearted understanding and an obvious liking for teenage girls. She sets out to explain, not only the physiological changes of puberty and adolescence, but also the social and emotional adjustments that necessarily follow. There are clear diagrams to illustrate the chapters on reproduction ; a helpful explanation of menstruation which, the author claims, should never be regarded as a handicap ; and a description of mating and natural childbirth.

In the latter part of the book the author is intent on providing answers to adolescent problems and giving advice on behaviour. So many youngsters miss the fun of adolescence because they find they cannot cope with boy-girl relationships ; suffer paroxysms of embarrassment because of their new height or acne troubles ; resent parental interference or fail to get good food, sufficient sleep and exercise. Many of these problems that loom so large are only temporary and with regular health habits and proper knowledge and understanding of sex behaviour, should never prove serious.

Adolescence is the time when the foundations for adult life are laid. It is the period when young people gradually learn to acquire independence, exercise responsibility, learn to get on in mixed company and acquire the education and training for a career or motherhood.

The author believes that too often young girls are inadequately prepared for adult life. They find themselves in situations with which they cannot cope and often do not foresee the consequences of careless behaviour. Mrs. Shultz explains the differing sex natures of men and women and both boys and girls can learn a lot that will help them in understanding each other.

This is an eminently readable book that, it is hoped, will find its way into many school and youth club libraries. It should prove a welcome aid to parents and teachers who are trying to help and understand their teenage charges, as well as to the young girls for whom it was written.

E. PARRY.

THE CHANGING YEARS, by Madeline Gray. (Alvin Redman Ltd. 1956. Pp. 224. Price 12s. 6d.)

It must be difficult to write a book about the menopause, as it is difficult to write on marriage, without over-emphasising its possible sufferings. In spite of this fault Mrs. Madeline Gray has produced a bright and chatty book containing much good sense and wise advice amongst a welter of anecdotes and explanations of a "popular scientific" type. English women do not, on the whole, take themselves and their symptoms as seriously as their American sisters and are probably more inclined to accept medical advice without much explanation. For us, therefore, the second half of the book, on "How you can help yourself" and "What to do about your sex life and your figure", etc., is probably more

interesting and valuable than the first half, which is concerned with the physiology of the sex endocrines and their use in the treatment of menopausal disorders.

The undoubted value of this book lies in its emphasis on the fact that the menopause is a passing phase in the life of all women and should be accepted as cheerfully as possible ; also that disagreeable symptoms can nowadays be relieved by expert medical help.

M. MACAULAY.

THE NEW 'COMMONSENSE ABOUT SEX', by Leonora Eyles. (Victor Gollancz Ltd. 1956. Pp. 93. Price 6s.)

This is a very personal and sensible little book with which most happy and mature people will feel at home. It should be of value to the sensible couple who have been brought up in the respectable silences of English middle-class life. The plea for marriage and love-making to be regarded as an art with a technique is well put, if somewhat biased towards the feminine point of view. I would suggest that the Song of Solomon should also be consulted regarding the uncommon sense.

JOHN BURTON.

HAEMOPHILIA : SOME USEFUL NOTES AND ADVICE. (Ministry of Health. 1956. Pp. 11. No price stated).

This pamphlet, which is being distributed to haemophilics, appears to be designed to do two things : (1) to summarise extant knowledge ; (2) to encourage the haemophilic in the belief that something is now being attempted in " official " circles.

This latter aspect is important, for many haemophilics feel, and rightly, that their at present incurable affliction is the cinderella of the welfare services and of research.

In the former aspect a brave attempt has been made to extract from the mass of opinion and dogma (often conflicting) appertaining to the problems of haemophilic daily life, a summary to introduce the subject to the uninitiated i.e., to the parent of a new case, and to refresh the memories of those already well acquainted with haemophilia. There is, however, nothing in the pamphlet new to any haemophilic over twelve, and it errs constantly on the side of over-simplicity and over-abbreviation.

The introduction contains a serious error : " . . . blood (in the haemophilic) will flow freely from the cut surface until it is stopped by treatment ". This implies that a haemophilic will bleed to death from injury, however slight, unless treatment (presumably skilled) is immediately available. Whilst this could happen it rarely does for, contrary to general belief, haemophilic blood clots of its own volition, but may take longer than normal to do so. The clot may be fragile, break down and bleed again. The constant advice in this pamphlet to seek medical and hospital advice seems overdone.

As haemophilia is 98 per cent a male affliction, to dismiss the problems of shaving in two lines is an over-simplification. Where possible teenage haemophilics should have the opportunity of personal advice from older patients. And certainly the right type of electric razor should be freely available under the National Health Service.

It is encouraging to read that " the Haemophilic person has more ability than disability ", with emphasis on adaptability to enable as normal a life to be led as possible.

Although reference is made to other organisations the Haemophilia Society is not mentioned. One wonders why.

The 11 pages are divided into 5 chapters with over 20 subdivisions : (1) Dealing with the disease, (2) Protective Measures, (3) Hobbies and interests, (4) Services available, (5) Family history and inheritance. The fact that so many subject headings have been crammed into 11 pages is an indication of its excessive compression.

If this pamphlet is to be revised frequently, and/or to form part of a series, then the effort and cost of publication will be justified, but on its own it is neither of real value nor completely useless.

FRANK A. SMITH.

ANTI-POLIOMYELITIS VACCINATION. Conquest Pamphlet No. 1. (Research Defence Society. 1956. Price 3d.)

This pamphlet poses the more important questions which are asked by parents of children who are eligible for vaccination against poliomyelitis. The authors have succeeded in including in their eight questions all the points which are likely to be questioned by

intelligent parents, and the topics range from "What are the risks of vaccination?" to "How are the monkeys obtained?"

The answers are straightforward and factual and explain, amongst other things, what are the chances of catching poliomyelitis, of being paralysed, how effective is the vaccine, and what the vaccine consists of. It is explained that the duration of immunity cannot be known until the children inoculated in 1955 have passed through and been exposed to infection in numerous epidemics.

This pamphlet is recommended for health departments for distribution to parents, or, on the other hand, for school teachers or others who are asked to speak to public groups on this subject.

A. J. DALZELL-WARD.

GOOD HEALTH WITH DIABETES — A Parent's Handbook by Ian Murray. (E. & S. Livingstone Ltd. 3rd edition 1956. Pp. 51. Price 2s. 6d.

SO I'M A DIABETIC, by Madeline Scott. (Angus & Robertson Ltd., 1956. Pp. 94. Price 10s. 6d.)

These two small books, both revised versions of earlier editions, have the same purpose: they are written for the diabetic patient so that he may both understand and manage his own disease.

The great merit of Dr. Murray's book is its small size, for literally and figuratively it should fit anyone's pocket. Indeed, it can have few equals as a reference book which the patient can always carry with him. The author conveys accuracy of meaning with brevity by avoiding too much chatty oversimplification of his technical subject and, although some readers might find the style a little impersonal, the text is always clear.

The subject is covered systematically and comprehensively and the book contains clear and simple, but adequate food tables built up in units or portions containing 15 g. of carbohydrate. It is commendably free from mistakes and misprints and the only criticism is that, in parts, particularly, in the chapters concerned with planning the diabetic diet, the text is written in a style more appropriate to an elementary textbook of medicine than to a patient's handbook.

Sister Scott, who worked with diabetic patients in Sydney, has written her book in the form of a catechism, with the result that there is some jerkiness of the text and a certain lack of continuity of the subject matter. It might be difficult to form a clear picture of diabetes from this book alone, but as an adjunct rather than an alternative to instruction in the clinic it is excellent. The questions range widely, are practical and well chosen, and reveal the author's extensive experience with diabetic patients. The answers carry conviction by their frankness and, although written in very simple language, the style is lively and human. It is a common experience to find the diabetic patient who suffers needless anxieties and restrictions on his life because he overestimates the adverse influences of the disease. Such a patient will be helped greatly by this book.

A. R. HARRISON.

THE PRINCIPLES OF MILK LEGISLATION AND CONTROL. (F.A.O. Agricultural Development Paper No. 59. 1956. Pp. 67. Price 3s. 9d., from H.M.S.O.)

This publication was written by Dr. W. A. Letham, formerly Principal Medical Officer, Ministries of Health and Food in the United Kingdom, and now Consultant to the Food and Agricultural Organisation of the United Nations. It seeks to outline the legislative control of milk which is required to ensure that this important food is safe to drink. There are chapters on Administration, Special Provision for Hot Climates, Special Types of Milk, (i.e. grades), Milk Products, and Milk Testing.

This is a first-class publication. It is written with unusual clarity and is obviously the result of long practical experience. The chapter on Administration is alone worth the modest cost of the book. Under the heading of General Principles of Legislation, there is sound advice to any country seeking to introduce new laws. Thus, "The first principle of legislation is that no regulation should be made which cannot be enforced". ". . . no law can be enforced without the co-operation of the persons concerned". "Before regulations are drafted, it is always advisable to consult the parties interested." "Education must precede legislation." "Instruction is even more important than inspection."

The technical advice given is of the same high standard, and we unreservedly recommend this work to all health officials.

G. GRAHAM DON.

FOOD HYGIENE : Fourth Report of the Expert Committee on Environmental Sanitation (World Health Organisation Technical Report Series No. 104. 1956. Pp. 28. Price 1s. 9d. from H.M.S.O.)

This helpful and interesting report shows that world-wide interest is taken not only in the technical side of food poisoning, but also in its prevention, and in the methods to be used for the education of food handlers in matters of hygiene. It is emphasised that food hygiene should be included in developing public health programmes and that specialised staff, well-equipped, and well-trained, should be available as teachers. University courses in sanitary science and hygiene would help to train health inspectors for this work. It is also suggested that industries would gain by their support of such projects.

There are a few technical omissions which may be briefly mentioned. The definition of food poisoning on page 5 is not entirely satisfactory as the clinical picture for salmonella food poisoning often combines signs of infective as well as toxic disturbances. The examples given under " gastro-intestinal disturbances following the ingestion of food contaminated with various bacteria ", should include the staphylococcus. Staphylococcal enterotoxin, salmonellae, and *Clostridium welchii* are responsible for the majority of sporadic cases and outbreaks of food poisoning when bacterial multiplication has been encouraged by imperfect storage.

In the classification of food-borne illnesses on page 6, *Cl. welchii*, now recognised as a common source of food poisoning in Great Britain, should be included ; the list of chemical irritants should also include copper and salts of tin.

In the section on Milk and Milk Products it is well said that raw cream (and pasteurised cream may be added also) should come under the same statutory regulations and laboratory supervision as milk. It might have been pointed out also that the Ice-Cream (Heat-treatment, etc.) Regulations brought into force in 1947 in England together with a laboratory-controlled grading scheme have greatly improved the safety of ice-cream.

The section on Meat rightly stresses the danger of food poisoning from processed and made-up meatstuffs contaminated during preparation. It should also be mentioned that raw meats may be already contaminated with salmonellae and *Cl. welchii* on arrival at the manufacturer or kitchen and that bacteriological control of both home killed and imported meats might figure more largely in food hygiene programmes.

It is desired under " Poultry and Eggs " to establish an upper limit for the bacterial count of powdered dried egg, but nothing is said about the common danger of salmonellae (including *Salm. paratyphi B*) contaminating a proportion of all broken out egg products including dried and frozen whole egg and egg white. Freedom from salmonellae in a standard quantity of egg should be required.

The purification of shell-fish at stations equipped for the purpose is carried out in a number of countries and could be included with the recommendation to keep shell-fish beds free from sewage pollution (page 13).

On page 15 the feeding of pigs with uncooked garbage is condemned ; other foods given to animals also need care—for example, fish meal, samples of which have been reported to be contaminated with salmonellae.

To the recommendation on page 17 that foods should reach the catering establishment in a *wholesome* condition, public health workers would add the word *safe*.

BETTY C. HOBBS.

THE CHEMICALS OF LIFE, by Isaac Asimov. (G. Bell & Sons Ltd. 1956. Pp. 159. Price 12s. 6d.)

It requires a bit of courage to take boys and girls, even those towards the end of their schooldays for whom this book has apparently been written, slap into the middle of biochemistry, but this is what Professor Asimov has tried to do, and on the whole with considerable success, at least, as far as a mere adult can judge.

His courage is emphasised by the fact that he has, correctly in my view, taken the activity of enzymes as the focal point in all living processes and has thus avoided any charge that he

has sacrificed scientific truth or the modern outlook in attempting to be easy to follow.

Yet his efforts seem to me to have been successful, and I hope they will seem so to his intended young readers. He has a simple and lucid style, even though to English ears it may be somewhat marred by excessive Americanisms. He has a remarkable facility for using familiar phenomena by way of simile, some of them fairly well established (such as the firemen with the row of buckets and the ball rolling downhill) and some of them novel and equally ingenious ; at least, they were new to me. The value of these analogies is reinforced by some well-drawn simple diagrams.

After describing what proteins are, with particular relation to their importance in enzyme complexes, the author discusses in five chapters the various jobs that enzymes help to organise and how they can be antagonised. The remaining four chapters contain a useful introduction to the chemistry and physiology of vitamins and hormones.

Although, as I hope has been made clear, this book is written for school children, many maturer readers with an interest in biochemistry—even if they possess no knowledge of the subject—will almost certainly enjoy reading it, and can hardly fail to benefit from doing so.

A. L. BACHARACH.

JUNIOR HEALTH AND HYGIENE MANUAL, by Dennis Geffen and Susan M. Tracy. (Educational Productions Ltd. for the British Red Cross Society. 1956. Pp. 64. Price 2s. 6d.)

This is a very interesting guide to hygiene. It is well presented, and is illustrated throughout. There could have been a little more imagination and humour in the illustrations, but it is a most readable book.

In their foreword, Dr. Geffen and Dr. Tracy point out the importance of Mental Health as well as Positive Health. In their final chapter, "The Healthy Mind", one is very happy to see a section on Reading. In these days of mechanical entertainment, the more encouragement young people are given for making their own recreation, the better.

Perhaps the authors could have written a further chapter on Mental Health, dealing with family life and emphasising a child's place, and responsibilities, as a member of the family team.

The manual covers a very wide field of Hygiene, including Personal Hygiene, Health Laws, Hygiene in the Home, Clean Food, Infection, Prevention of Injury and Disease, Immunity, Hygiene in the Camp. Chapter 6 "Your Town or Village" gives a valuable lesson in citizenship, showing the responsibility of the citizen to the community.

This manual should prove a useful guide, not only to the young people, but to teachers of hygiene and all Associations dealing with health education.

M. GANNON.

OURSELVES AND SCIENCE, by J. H. Pheasant and S. J. Parkin. (George Allen & Unwin Ltd. 1956. Pp. 189. Price 6s. 9d.)

This book is the third of a series and seems likely to prove very useful and helpful, especially to the inexperienced science teacher. It deals with a variety of topics under the following chapter headings : What matter is made of ; The human body, structure and functions ; Our food and its use ; How we digest food ; How the body gets rid of waste ; The air and how we use it ; The body and comfort ; Seeing ; Men, work and machines ; Electricity ; Working in the garden.

The contents of each chapter show a well-defined coherence in spite of the brevity of the narrative. In a school where sufficient time is given to the pupils to attend to the section "Things to do" as well as to the "Ten Questions" which appear at the end of each chapter, the chapters provide adequate statements of topics.

Particularly commendable is the constant attempt to illustrate principles by reference to experiences common to most children. The diagrams, too, are well executed.

SCIENCE APPLIED TO HOUSECRAFT, by I. Sanderson. (Edward Arnold Ltd. 1956. Pp. 160. Price 10s.)

This small book gives a lucid summary of many of the principles involved in the construction of houses, and in the working of the more usual modern appliances. The properties of building materials, from mud and timber to reinforced concrete, are considered, not only in respect of their strength and

durability but also in regard to their characteristics of heat insulation and resistance to the penetration of moisture. Advantages of modern methods of house construction are pointed out.

Domestic water supply is dealt with—collection, purification and distribution, whilst household hot water services are described. The notes on anti-frost precautions seem to be inadequate in view of the lamentable freezing-up of the plumbing in so many newly-built houses that occurred quite recently during a comparatively small drop in outside temperature.

The chemistry of soaps and other detergents is discussed, as is sanitation and sewage disposal.

The section on heating and cooking opens with an account of the formation of coal, and some of the properties and varieties of coals are described, with the making of gas. The flow of heat is discussed and mention is made of the differences in the thermal transmittance of window glass and brick wall. Solid fuel appliances are described, but more stress might well have been laid upon the great improvements in efficiency obtained with recently designed fireplaces and openable stoves, in comparison with wasteful appliances of comparatively earlier make. This is particularly true of gas fires. It is also to be regretted that fireplaces and grates, cheap but inefficient, are still being put into new houses. The statement on p. 96 (under "Solid Fuel Stoves")—that the slow-combustion stove used for space heating on the Continent is "much more efficient than the most up-to-date fire" was recently contradicted by a leading specialist in this particular subject.

There are good expositions of elementary principles of electricity and magnetism—leading to a useful treatment of the supply of electricity to the home, and its operation in various applications.

The many practical exercises and questions throughout the book are clear, simple and convincing, but it is a little difficult to see for whom the book is intended. The would-be householder, or one who wishes to re-equip a house would find but few definite data to guide him: e.g. water softening theory and methods are described but when, and for what waters, the use of domestic water softening plant is desirable, and the economics of the problem, are not touched upon. For a reader needing a fuller study there is no bibliography, and references are very few.

T. C. ANGUS.

SAFETY EDUCATION, by A. E. Florio and G. T. Stafford. (McGraw-Hill Book Company. 1956. Pp. 327. Price 41s. 6d.)

This comprehensive manual covering safety education of all types of accidents is primarily intended for teachers, the author of the book believing, quite correctly, that this type of instruction requires as much specialised training as any other subject.

For American readers the book should be extremely useful and discriminating readers in England will doubtless find many items of value in it, although much of the information is, of necessity, applicable to the United States only.

Probably the most helpful section for British readers is that dealing with Home Safety, in which the author stresses the need for home training to re-inforce any instruction which may be given in school.

It is interesting to note that the pattern of home accidents in America is very much the same as in Great Britain, although in the States gas poisoning is less frequent than medicinal poisoning, the opposite being the case in this country.

The check-list given in this and other sections of the book could form the basis of discussion groups in this country.

W. E. DUNCAN.

OTHER BOOKS RECEIVED

CALENDAR AND TEACHERS INFORMATION GUIDE 1956-57. (The College of Preceptors, 2 and 3 Bloomsbury Square, London, W.C.1 .Price 5s. post free).

SPECIAL STUDY ON SOCIAL CONDITIONS IN NON-SELF-GOVERNING TERRITORIES. (United Nations. 1956. Price 12s. 6d. from H.M.S.O.)

FORWARD TRENDS IN THE TREATMENT OF THE BACKWARD CHILD, Vol. 1, No. 1, October, 1956. (Twickenham Publishing Company, 44 Broad Street, Teddington, in consultation with The Guild of Diploma Teachers of Backward Children. Quarterly. Pp. 32. Price 2s. 6d.)

NEW PUBLICATIONS

Among the Council's recent publications are the following leaflets and posters :—

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